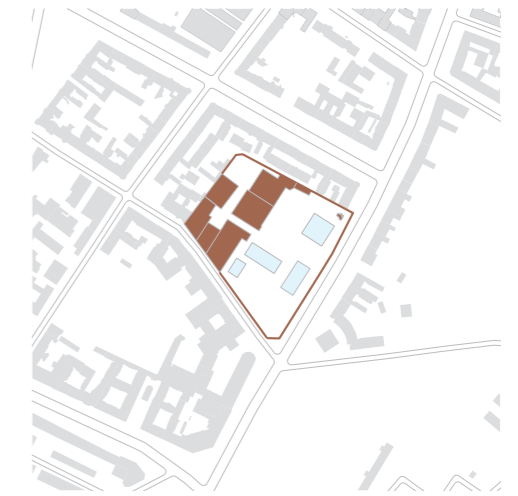


**Press Cutting**

Publication AJ  
Title `Less a refurb, more a repair` ...  
Author Rob Wilson  
Date 24 FEB 2022  
Type case study  
Issue Print  
Pages 42-55

1073  
Bötzow Brauerei Berlin



*Building study*

## ‘Less a refurb, more a repair’

David Chipperfield Architects has performed a masterful warts-and-all retrofit of Berlin’s former Bötzw Brewery, led by the client’s desire to ‘keep the DNA’ of the building



The retrofit of the seven remaining buildings of the historic listed Böttzow Brewery in Berlin into flexible office and co-working space is the first phase of a masterplan by David Chipperfield Architects for the whole site. The overall aim is to transform it into a more public destination, with a new beer garden and restaurant and a further four new buildings offering a mix of office and residential accommodation, to be completed in 2025.

44

**Words** Rob Wilson  
**Photography** Simon Menges

‘Some people have actually said: “So when are you starting the renovation?”’ says Thomas Benk, an associate at David Chipperfield Architects (DCA) in Berlin. We are standing outside the main entrance of what was the Böttzow Brewery, five minutes by tram from Alexanderplatz. The phased retrofit of the historic complex of seven buildings – built between 1864 and 1927 – has just been completed by the practice. It’s the first stage in the realisation of a masterplan DCA drew up for the larger site in 2013. Once complete, it will see the addition of four new pavilion-like buildings, connected at basement level, strung out along its south-eastern flank.

The façades of the historic brewery buildings – yellow brick with red brick dressings – are surprisingly elaborate, detailed in a municipal-Italianate style reminiscent of old water board buildings in the UK. The exteriors remain pockmarked, pollution-flecked and worn in places. Many of the old window frames are clearly retained, and there’s original, slightly discoloured glass in the early-20th century glazed awnings, which in turn have late-20th century additions – meaty double fluorescent strip light fittings – suspended below. Benk

### Client’s view

One freezing cold night I walked past the former Böttzow Brewery, a sleeping beauty. When we began to revive the site, we first looked at its DNA. David Chipperfield created a masterplan with great respect for the historic monument and its foundations. I enjoy bringing together the old walls, machines and rods with today’s high-tech. At Böttzow, the past marries the future.

Traces left by use and time have been preserved as much as possible. As early as 2015 the HealthTech company and Ottobock moved onto the historic site, driving the digitalisation of the orthopaedic industry from there. Smart innovations with artificial intelligence, 3D printing and human-machine interfaces come to life inside the 19th century building. We are creating a space for creativity.

*Hans Georg Näder, owner, Böttzow Berlin*



catches me looking at the lamps: 'Yes, those are the original GDR lamps,' he confirms, a reminder that this was once part of East Berlin, capital of the German Democratic Republic. 'We found a firm that could upgrade and retrofit them as LEDs, which was cheaper than replacing them: there are over 100 in the building. People who grew up in the GDR become very nostalgic on seeing them!'

The light fittings exemplify DCA's approach to this project, one that Benk describes as 'less a refurbishment, more a repair'. It's an approach found elsewhere in DCA's work – at the Neues Museum project, on which Benk also worked, for example. 'But it also derives from the request from the client, Hans Georg Näder, CEO of healthcare company Ottobock, to "keep the DNA of the building"'. So our intention has been to keep the layers of time, to show the impact of function and use and the story the building tells.'

Ottobock, a leading manufacturer of prosthetic limbs, was founded in the city in 1919, coincidentally after the bloodbath of the First World War (the Berlin of maimed soldiers depicted by George Grosz comes to mind). The company re-established itself in West Germany after the Second World War, then just over 10 years ago decided to move its HQ and research facilities back to Berlin after 75 years.

This wasn't for sentimental reasons: 'Näder knew that a Berlin base was more likely to attract young talent to the firm,' says Benk. Indeed one feels that their choice of the brewery site and directive to 'keep its DNA' played into this thinking. It's exactly this 'poor but sexy' image (as Berlin Mayor Klaus Wowereit famously put it) that has made the city attractive to 20-somethings, even if the reality these days is rather more polished.

## 'Our intention has been to keep the layers of time, to show the impact of function and use'

The Böttzow Brewery site on the north-east flank of the city centre, where it drew on springs from a high water-table beneath, was typical for 19th century Berlin. 'They weren't allowed to brew inside the old city boundary, so Berlin was practically circled by breweries,' says Benk. Indeed, as you walk west from the site, you hit the remains first of the Königstadt and then the Pfefferberg breweries, both long-repurposed, part of the latter housing the Aedes architecture gallery. They are all built in the same striking red and yellow brick, their lofty industrial chimneys once jostling for the attention of thirsty Berliners, for whom they often catered directly with beer gardens on site. At Böttzow, a garden and beer hall for 5,000 people occupied its south-east corner. Directly to the north was an elaborate villa and garden belonging to the brewery's owner. A whole ecosystem and range of uses from public to private was accommodated on site: from water source to beer production to consumption – to the visible fruits of the profits produced.

While the main brewery buildings survived two wars without major damage, the business did not thrive thereafter. During the GDR period, the villa and beer hall were demolished (perhaps considered too symbolic of bourgeois decadence), while the remaining buildings were used primarily for storage and survived pretty much intact. It was only around 1990 that the threat of demolition led to the complex being given a heritage listing, after which it remained largely empty, apart from a few underground parties in the 1990s. 'I've met a few people who remember some strange



nights here,' recalls Benk. Elements of this varied history have been allowed to remain, from the giant ruined trellised arches of the villa's garden to 90s graffiti. The practice got the Berlin Heritage Authority on board at an early stage with their 'do less, add less' approach, as Benk terms it. 'We had a meeting with them every two weeks, showing tests and mock-ups of proposed surfaces and materials,' he says. Accepting imperfection, he adds, was more difficult for many of the builders involved 'but they really got it by the end'.

The work was completed in phases roughly following the chronology of the seven successive blocks that mark the brewery's expansion over 65 years. The range of four 19th century buildings that Ottobock now occupies were finished first, while the mostly early 20th century blocks to their south-west, separated by a courtyard with its fine glass and cast iron

canopy intact, have just been completed and are being let as commercial workspace.

The buildings' basic construction is pretty consistent throughout: loadbearing brick envelopes surrounding cast-iron frames, supporting floors formed of shallow brick barrel vaults. Only decorative flourishes, such as the Ionic capitals of the cast-iron columns, were omitted in the later blocks.

The brick envelope, like much of the building fabric, has been subjected to what Benk describes as 'soft cleaning', removing grime but not surface patina. Thermal improvements have been directed primarily at the roofs and windows. The former have been replaced with a new super-insulated sandwich, lined with timber soffits as before. Many of the windows were still the original 'box-window' casements – a precursor to double-glazing: double-layered, if single-glazed. Benk says: 'These still

work pretty effectively and they were made of really high-quality, kiln-dried timber, which you just can't get now. So we persuaded the client that the windows should not be replaced, just repaired, as this was by far the cheapest option. We've just added a second layer of glazing where it was missing.' In addition, a small heating element had been embedded around the inner window frame as a fall-back on very cold days. As Benk points out, what was most sustainable ecologically in 'do less, add less' terms – including the keeping of whole floors of GDR-era concrete tiles – has also proved the most economical option, too – a powerful argument to put before any client.

Inside, the installation of a sprinkler system has dispensed with the need to line or box anything out, in particular the finely-shaped cast-iron columns. This exposure of the load-bearing structure lends a real sense of integrity

## Heritage view

The stakeholders of the building and real estate sectors bear a significant responsibility when it comes to achieving the deceleration of man-made climate change as far as possible through the implementation of sustainable practices. Hence, heritage protection and preservation play an important role, the aim being to protect resources by extending the life cycle of architectural monuments.

Each preserved historic building stands for averted demolition with subsequent removal and disposal of building waste, as well as the prevention of the erection of a new building, which would significantly contribute to the CO<sub>2</sub> emissions caused by the building industry. The maxims of contemporary historic preservation – continuity of materials, minimisation of interventions, repair before replacement and reversibility – are also principles of the resource-efficient circular economy.

Sustainability through heritage conservation is not limited to the ecological aspects, but also has economic, social and cultural impacts. The preservation of historical buildings enables long-term planning and prevents expensive and socially unacceptable urban development in which buildings only have a limited life cycle from inception. A built environment that has evolved and is appreciated by society leads to positive identification and engagement with one's own environment.

The former Böttzow Brewery is a project that respects current historic preservation good practice in an exemplary manner by implementing sustainability measures. The hope for the future is that interest in conserving existing buildings will continue to increase, and that the potential it holds will be recognised and utilised by more building owners, architects and contractors, thus developing a new awareness of longevity as our guiding principle. *Dr Christoph Rauhut, Berlin state conservator and director, Berlin Monument Authority*



to the spaces. The approach has also allowed the full gamut of original surface textures and patinas to be left exposed, vivid in their 'story-telling' through traces of redecoration and remains of old fixings and fittings. Again, only 'soft cleaning' was implemented – just anything loose removed, necessary repairs done and replastering with a lime-based plaster, a lime-wash marrying it all together. In places, Benk says, they took a cue from previous GDR repairs, not always attempting to match and replace but to patch up – he points to a mortar infill where individual damaged glazed bricks had been repaired. 'If you try to replace too much, you run the danger of downgrading the old, compared with the new.'

The new pipes of the sprinkler system join the network of other pipes and services running along walls and ceilings: surface-mounted to minimise the need to cut into the fabric as well as offering ease of servicing. Elements include repurposed chunky old-school radiators running off the local steam-heating network (although whether this is powered by renewables or Russian gas is unclear).

Significant built interventions were limited to 'those needed to make the whole function and comply' says Benk. Key determinants were accessibility and fire. New service cores, lift shafts and oiled-black steel stairs have been cut through and added where required, in particular connecting down into the vaulted double-basements, once mainly beer stores and now fitted out with fitness equipment. Concrete ramps connect the numerous smaller changes of floor level. Deeper floorplates have been cut through to allow natural light to percolate down from new skylights above, although some areas still look as though they will need artificial lighting, even on bright days. Service zone strips of WCs and kitchenettes

have been added, faced in lime-washed gypsum boarding to distinguish them as flexible interventions.

Disappointingly, the success of what has been achieved in terms of reducing embodied carbon emissions through the 'do less, add less' approach cannot be fully assessed, as the figures are not yet available. Equally, this approach does not seem to have been such a driver in the new-build phase of the project. Underpinned by a massive new basement incorporating car parking, it will consist of four blocks with loadbearing structural concrete façades, though Benk says these have now been respecified to use recycled aggregate. This is now a legal requirement for all new public buildings in Berlin, but is not yet required for commercial developments such as this.

Of course, the DNA of any site is more than skin-deep and it's these new-build elements that will drive the commercial and social sustainability of the site. Looking to revive the spirit of the brewery, the layout of the new blocks certainly promises formally and architecturally to offer a solution to reactivating the site. A new beer garden is planned (Ottobock has bought the rights to the Bötzwow name), which, together with a possible food market, would give the site a public face again, while the blocks' expressive arched façades will lend the whole a distinctive urban profile. The loadbearing façades will also maximise flexibility and change of use, with block 10 in particular, on the site of the old villa, designed to function either as office or residences.

For now, the mastery of texture and detail shown in the retrofit part is impressive. What appears at first sight as a light-touch aesthetic is indicative rather of an increasingly sophisticated and forensic approach to retrofit at the core of DCA's practice.

## Project data

**Start on site** January 2015 (existing buildings 1-7); 2020 (new buildings 8-11)

**Completion** March 2021 (existing buildings, 1-7); 2025 (new buildings 8-11)

**Gross internal floor area** 43,500m<sup>2</sup> (32,000m<sup>2</sup> historic buildings, 11,500m<sup>2</sup> new buildings)

**Gross (internal + external) floor area** 43,800m<sup>2</sup> (32,000m<sup>2</sup> historic buildings, 11,500m<sup>2</sup> new, 300m<sup>2</sup> external terraces)

**Construction cost** Undisclosed  
**Architect** David Chipperfield Architects Berlin

**Executive architect** DGI Bauwerk (procurement, construction supervision buildings 1-4)

**Client** Bötzwow Berlin

**Structural engineer** Ingenieurbüro Rüdiger Jockwer

**M&E consultants** Ingenieurbüro Kleemann (buildings 1-4); Bohne Ingenieure (buildings 5-7)

**Building physics** Ingenieurbüro Axel C Rahn (buildings 5-7)

**Acoustic consultant** Ingenieurbüro Axel C Rahn (buildings 5-7)

**QS** BAL Bauplanungs und Steuerungs (buildings 5-7)

**Fire consultant** Dr Zauft Ingenieurgesellschaft für Bauwesen

**Lighting consultant** Architektur Im Licht

**Restoration consultants** Restaurierung am Oberbaum; A&M Restore

**Landscape consultant** Wirtz International

**Project manager** Laborgh Investment

**CAD software used** MicroStation (historic buildings), ArchiCAD (new)

**Embodied/whole-life carbon** Unavailable

**Annual CO<sub>2</sub> emissions** Unavailable



## Architect's view

Respect for the existing buildings has acted as a good compass for our design direction. When we began to look at the historic fabric of the former Bötzwow Brewery, we were impressed by the diversity of the existing buildings and of the traces of use from different periods. Earlier conversions and extensions intrinsically shape the appearance of the buildings, effectively documenting their age and thus the history of the Bötzwow Brewery. This was something to accept; the DNA of the buildings was to be visibly preserved, figuratively speaking, with its traces from the 19th century up to the GDR era. At the same time we would allow imperfections, areas

and places that do not correspond to the ideal original condition and we would not 'hide' additions for today's use, including the necessary building services.

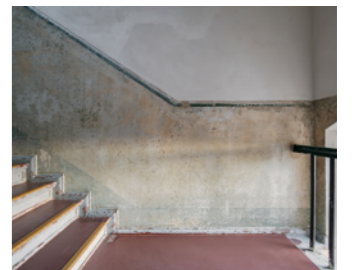
In the implementation of this concept, material tests and the production of samples and mock-ups were particularly useful for the testing of suitable materials as well as the technical feasibility for the later large-scale execution. We proceeded in this way on an area of the façade, which we had gently cleaned and repaired in a manner in line with historic techniques, and also on architectural surfaces in the interior, such as walls, ceilings, floors and the visible internal structures.

A comprehensive documentation of the existing windows, doors, gates, floor coverings and usage-related fixtures was a further helpful planning aid. This made it possible to take the necessary protective measures in advance and to arrange for an appropriate storage of the removed items. The inventory catalogue not only provides those involved in planning with a comprehensive overview of the existing resources, but also gives them the opportunity to share information concerning their preservation and possible re-use.

The guiding concept of sustainability has also proven effective in a diverse range of

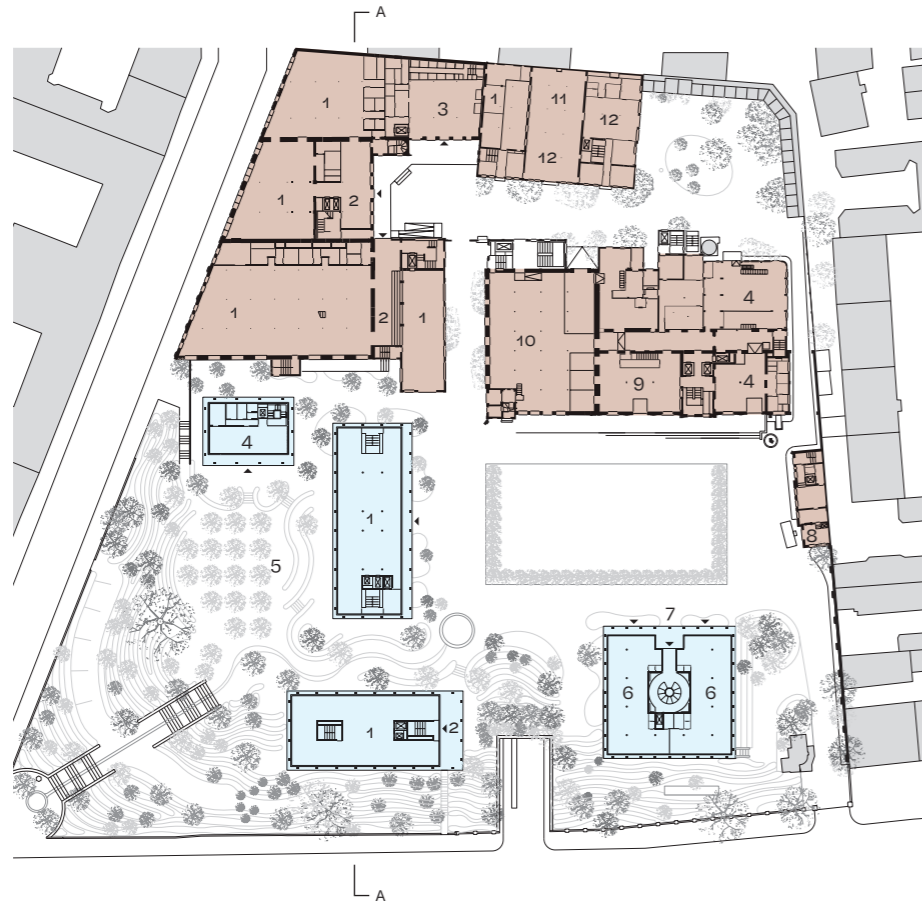
details, for instance with the refurbishment and regulations-compliant conversion of over 100 existing lights from the GDR era and the refurbishment of 40 cast-iron ribbed radiators.

*Thomas Benk, architect, David Chipperfield Architects Berlin*



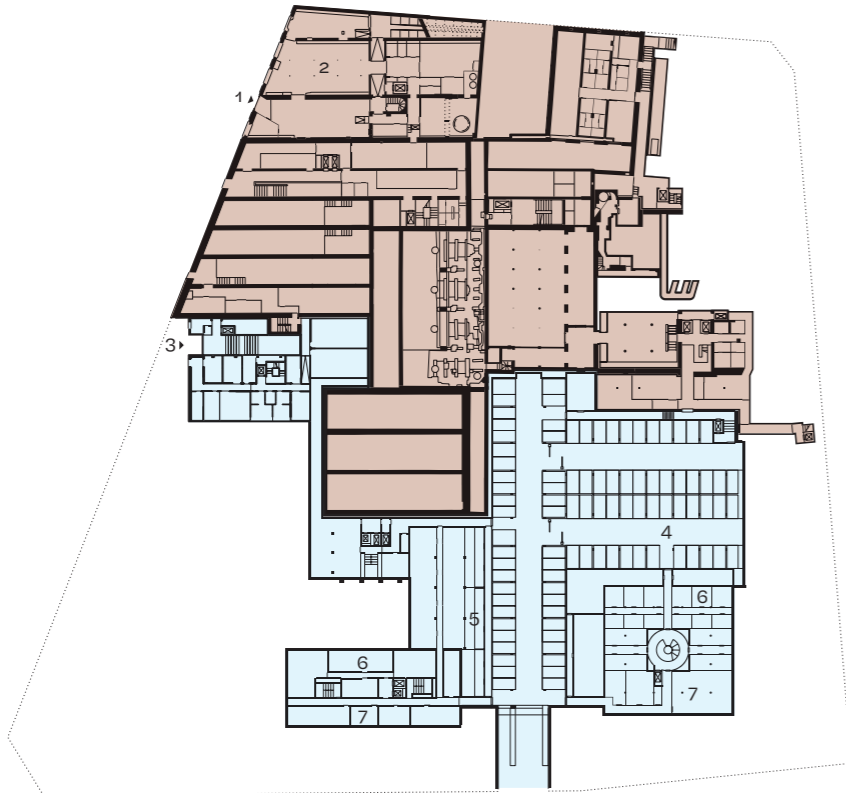
Ground floor plan

- 1 Office
- 2 Foyer, office
- 3 Food Market
- 4 Catering
- 5 Beer garden
- 6 Retail
- 7 Entrance to apartments
- 8 Family Office
- 9 Ottobock administration
- 10 Ottobock research and development
- 11 Ottobock human mobility
- 12 Ottobock patient care



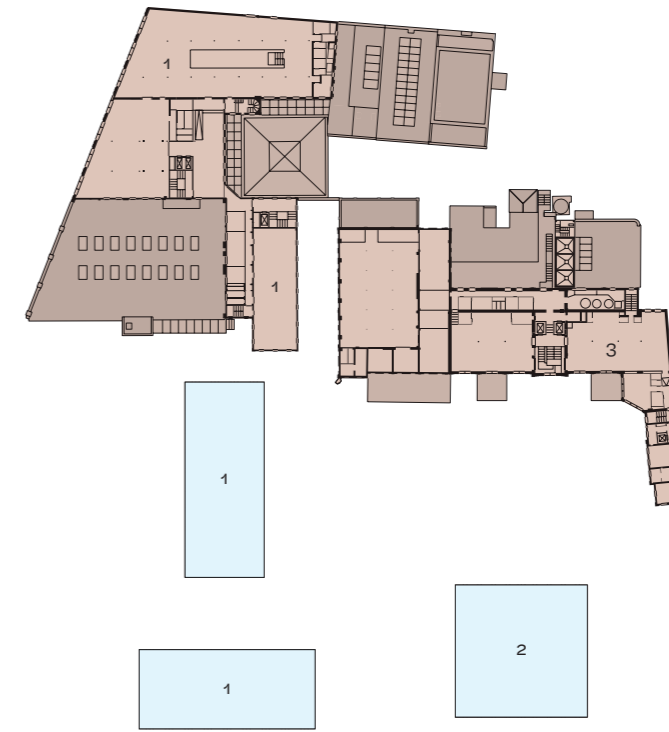
Lower ground floor plan

- 1 Entrance food market
- 2 Food market/catering
- 3 Entrance to fitness/spa
- 4 Underground car park
- 5 Bicycle parking
- 6 Storage
- 7 Technical services



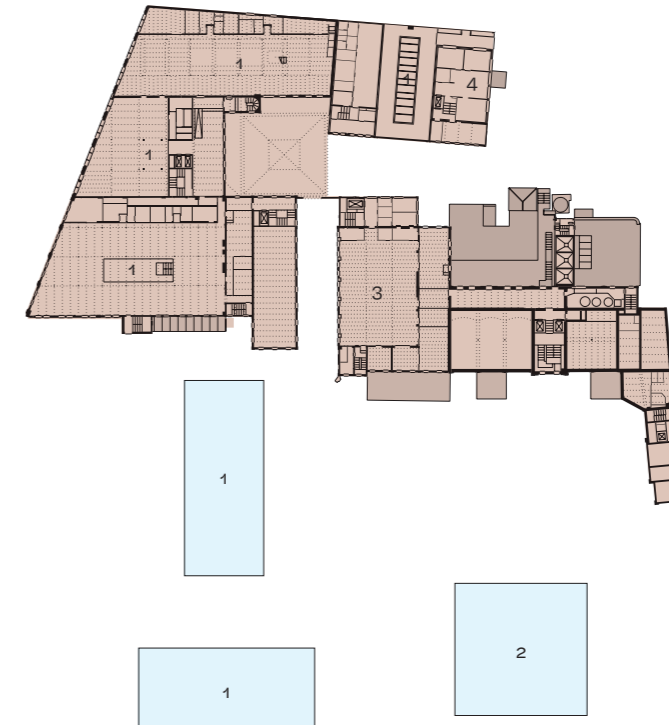
Second floor plan

- 1 Office
- 2 Apartments
- 3 Ottobock administration



First floor plan

- 1 Office
- 2 Apartments
- 3 Ottobock research and development
- 4 Ottobock patient care

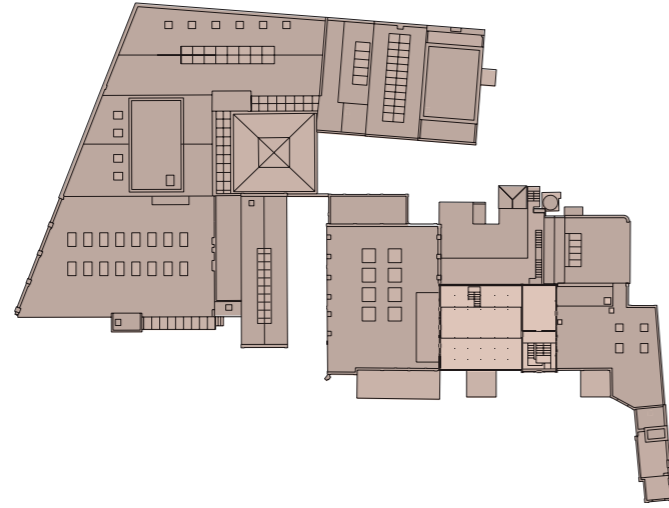


■ Retrofit (2015-2021)  
■ New-build (2021-2025)



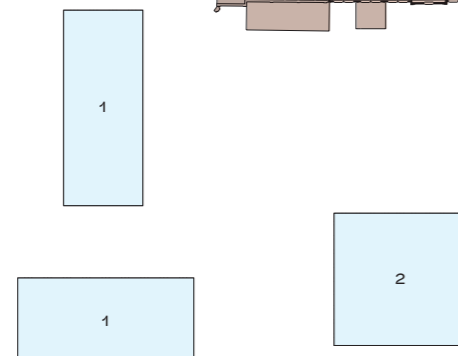
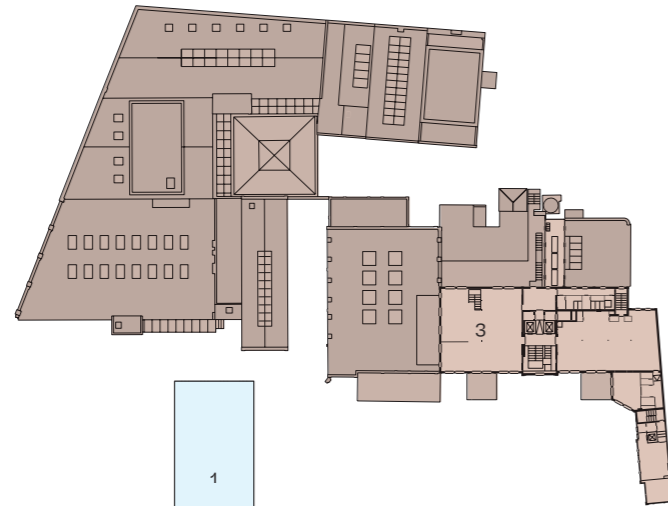
Fourth floor plan

- 1 Office
- 2 Apartments

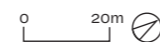


Third floor plan

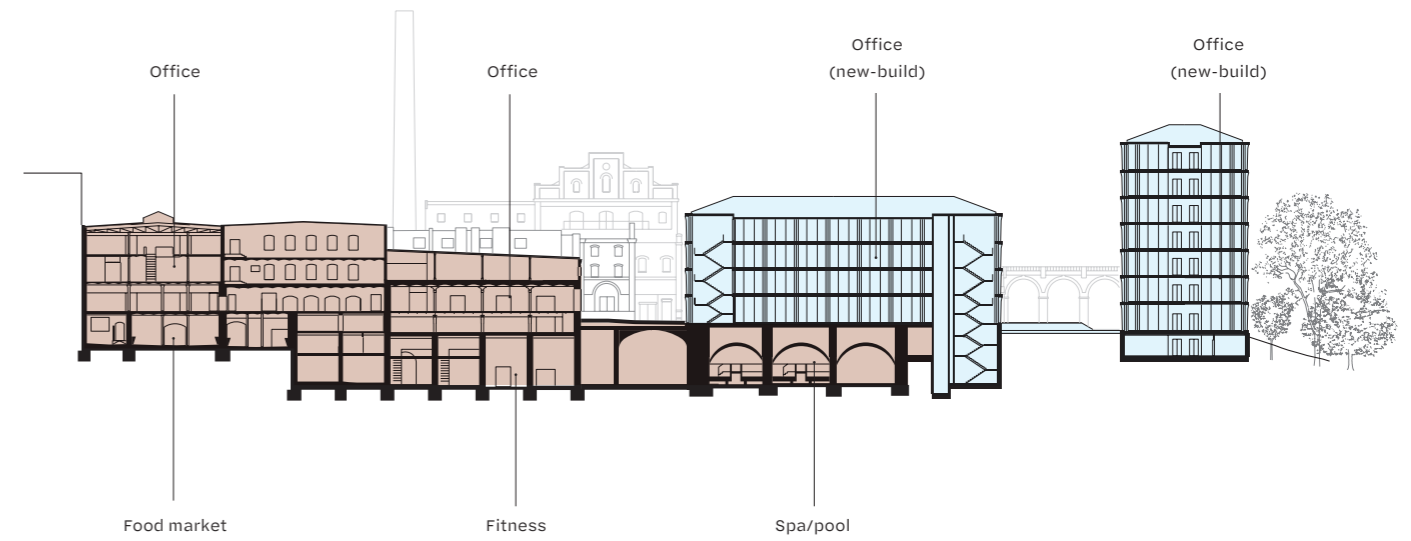
- 1 Office
- 2 Apartments
- 3 Ottobock administration



■ Retrofit (2015-2021)  
■ New-build (2021-2025)



Section A-A

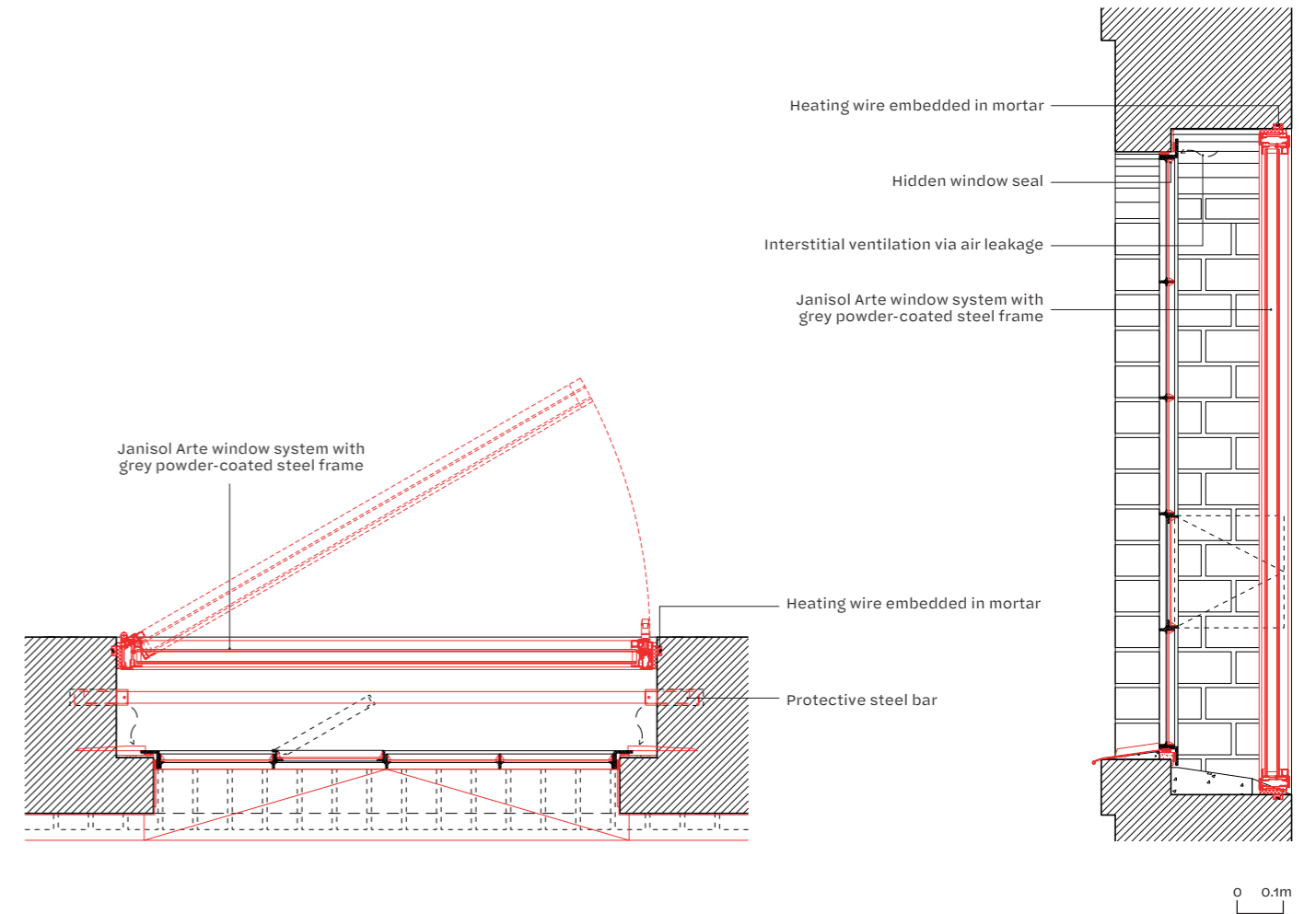


■ Retrofit (2015-2021)  
■ New-build (2021-2025)





Window detail sections



### Working detail

The refurbishment of the Bötzw Brewery is a unique example of how building physics can simultaneously support sustainable construction and heritage protection. This was achieved by prioritising and enabling the new use of listed buildings over mere compliance with norms and standards.

David Chipperfield Architects' concept of 'preserving the existing, carefully adding on to it and visibly displaying necessary technological upgrades' also provided the basis for the building physics considerations. The task was to find out where the existing building possibly might not comply with current standards and to make adjustments to integrate current user requirements.

The window treatment was one of many such instances. The existing windows were mainly single-glazed steel windows and their preservation was a heritage requirement. They were, however, not compliant with current building envelope standards for thermal insulation and comfort. The solution was to add thermally broken, insulated steel-framed windows behind these windows on the inside to upgrade thermal performance.

The high air leakage between the frame and casement of the historic windows results in significant air circulation in the interstitial space between the old and new windows, with the result that the attachment point of the new windows needed to be evaluated as

a potential thermal bridge. As using visible thermal insulation in the interstitial space was not permitted, an alternative to prevent a damaging temperature drop was required. This involved inserting a heated wire into a groove in the masonry at the connection point between the window and the wall, such as those used in heated rainwater pipes or gutters to prevent frost damage. Simulations were used to determine the required heating power and the temperature at which the heating must be switched on. Adjustment of the heating to users' requirements by manually overriding the activation temperature is possible.  
*Axel C Rahn and Michael Müller, engineers, Ingenieurbüro Axel C Rahn*