Monument Conservation

WEBAC®

WEBAC® SINCE 1978 40 YEARS STOPS WATER

Contents

For the restoration and conservation of historic structures, WEBAC offers products proven by practical experience for protecting the building fabric from the impact of water and moisture, in case of floods, for post-construction damp proof courses (dpc), for filling cracks and cavities, for protecting facades, for static stabilization in foundation soil and for stabilizing masonry.

This brochure provides an overview of the range of applications for which WEBAC products have already been successfully used.

HISTORIC BUILDING FABRIC

The restoration of historic building fabric is a special task and a major challenge for planners and contractors.

A monument ...

- is a historical document
- is characterized by its rarity
- is unique and original

The objective of restoration work is to preserve the original state of the structure and to implement the necessary measures in a careful and compatible manner.

WEBAC®

Introduction

The Venice Charter

Monuments are historical evidence of century-old traditions and common heritage which must be preserved for coming generations. The Athens Charter of 1931 for the first time defined principles for the conservation and restoration of monuments at international level.

Semper Opera House in Dresden during River Elbe flood in 2013

International Charter for the Conservation and Restoration of Monuments and Sites

In 1964, the Second International Congress of Architects and Specialists of Historic Buildings was held in Venice and the "Venice Charter" adopted. It comprises sixteen articles and defines key values and procedures for the conservation and restoration of monuments.
Some excerpts:

- The conservation and restoration of monuments must have recourse to all the sciences and techniques which can contribute to the study and safeguarding of the architectural heritage. (Article 2)
- The intention in conserving and restoring monuments is to safeguard them no less as works of art than as historical evidence. (Article 3)
- […] Its aim is to preserve and reveal the aesthetic and historic value of the monument. […] (Article 9)
- Where traditional techniques prove inadequate, the consolidation of a monument can be achieved by the use of any modern technique for conservation and construction, the efficacy of which has been shown by scientific data and proved by experience. (Article 10)
- In all works of conservation and restoration […], there should always be precise documentation in the form of analytical and critical reports, illustrated with drawings and photographs. […] (Article 16)

Types of Restoration and Products

Protection from water/moisture impact

- Sealing of adjacent foundation soil against water ingress
- Post-construction damp proof courses (dpc)
- Post-construction surface sealants on the outside and within the building fabric
- Protection of facade surfaces from moisture
- Protection of the building fabric before coating

Static stabilization of the building fabric

- Filling of cracks and cavities
- Consolidation of masonry
- Joint repair
- Stabilization of foundation soil

Application	Product	Properties
Bonded waterproofing and surface sealing	**WEBAC® 5611**	• Low build, flexible, moisture-vapor permeable
Post-construction damp proof courses (dpc) Filling of cracks and cavities Waterproofing in the building fabric	**WEBAC® 150**	• Filling of cavities in masonry in case of water ingress
	WEBAC® 1401	• Damp proof courses (dpc) with dense masonry structures and high wall thicknesses • Capillary obstruction, consolidating
	WEBAC® 1403	• Sealing injection into open-pored concrete structures such as tamped concrete • Capillary obstruction, consolidating
	WEBAC® 1404	• Filling of cavities in various structural elements • Sealing injection into open-pored concrete structures such as tamped concrete
	WEBAC® 1405	• Damp proof course (dpc) and sealing of masonry
	WEBAC® 1610	• Needling of masonry
	WEBAC® 1660	• Filling of cavities in quarrystone and unconsolidated rock
Filling of cavities	**WEBAC® 2260**	• Filling, sealing, stabilizing
Filling of cracks	**WEBAC® 4110**	• Structural bonding
Consolidation of masonry	**WEBAC® 2061**	• Filling of capillaries/pores, consolidating
Sealing of the outer side of the stucture Sealing in the building fabric	**WEBAC® 240**	• Sealing of structures
	WEBAC® 250	• Damp proof course (dpc) and surface sealing of masonry
Bonding, jointing	**WEBAC® 4525**	• Patching and jointing
Impregnation of porous structural elements	**WEBAC® 4180N**	• Impregnation of porous structural elements such as masonry and concrete • Sealing of gypsum-based masonry • Sealing injection into open-pored concrete structures such as tamped concrete

Introduction

Surface Sealing

Special reactive bituminous acrylate sealants are used for sealing surfaces of structures in ground contact or freely accessible structures. These systems also resist high water loads and are especially suited for use in monument preservation.
Polymer modified bituminous thick coatings (PMB) are used for (classic) surface sealants in structures. Reinforcement fabric is used as reinforcing material in the area of joints and for bridging cracks.

Sealing system **WEBAC® 5611** in use

- On exterior walls
- For bonded waterproofing
- On interior walls
- Beneath coatings

Properties

- Fast curing flexible sealing
- Watertight up to 6 bar at low film thickness (1 mm)
- Crack-bridging
- Rain-proof after approx. 3 h
- Application on dry and damp substrates
- Moisture-vapor permeable (Sd = 1.5 m)
- Reworkable with mineral systems and paints

Injection Measures and Static Stabilization

The following list provides a general overview. Due to the large number of products used and their applications, please observe the information in WEBAC Technical Data Sheets or call us.

Objectives of static stabilization

- Restoration of mineral bond
- Restoration of compressive strength and load-bearing capacity
- Filling of cracks and cavities
- Post-construction waterproofing
- Reinforcement of structural elements

Determination of static stabilization method

- **Filling of cracks**
  Measure for structural bonding of cracks in masonry
- **Filling of cavities**
  Filling of cavities and fissures in masonry structures
- **Consolidation**
  Improvement of cohesive properties of weathered or porous masonry structures
- **Needling**
  Measure for absorbing horizontally active forces in masonry structures
- **Anchorage**
  Measure for bonding masonry shells
- **Jointing/injection**
  Filling of weathered or construction-related mortar joints, gaps, fissures and clefts

Planning principles

- Analysis of structural condition, construction materials, soil and cracks
- Determination of injection technology
- Where appropriate, sample injection for suitability test and check
- Calculation of injection material quantities
- Assessment of time required for making drill holes
- Additional tasks, e.g. patching and filling
- Definition of requirements on products
- Measures, technology and procedure
- Preparation of work instruction
- Proof of stability

Consolidation of masonry

Homogenous, solid mortar structure and mineralized filling of bond deficiencies, cracks and cavities

- Staggered positioning of drill holes
- Combined injection where appropriate
- Injection at low pressure
- Injection material: **WEBAC® 2061** (polymer modified alkali silicate)

St. Nicholas‘ Church in Potsdam

St. Nicholas‘ Church was built between 1830 and 1837 according to plans by Karl Friedrich Schinkel and ranks as one of the most significant buildings of German Classicism. Damage to the church extended from the plinth to the roof.

The building was destroyed in the Second World War and restored section by section since the 1950s. It is now a UNESCO world heritage site.

In 2010, the reconstruction measures on the outer shell were completed. Damp proof courses (dpc) were installed in the foundations up to the plinth end, below the natural stone stairs and below the accessible roof area to prevent surface water from penetrating.

A superstructure of beavertail tiles was laid in accordance with the “old Potsdam architectural style” to protect the damp proof courses (dpc) installed in the sections with ground contact.

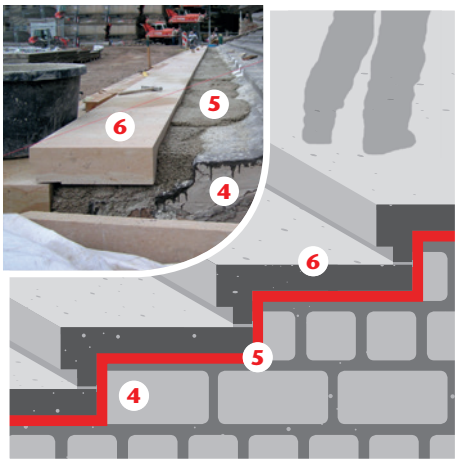
Plinth sealing

against soil moisture/surface water

① Wall structure exposed, surface leveled out

② **WEBAC® 5611** applied

③ Fair-faced wall laid with roofing tiles



Damp proof course (dpc) below stair covering

against surface water

④ Base structure exposed, surface leveled out

⑤ **WEBAC® 5611** applied

⑥ Stairs laid with covering

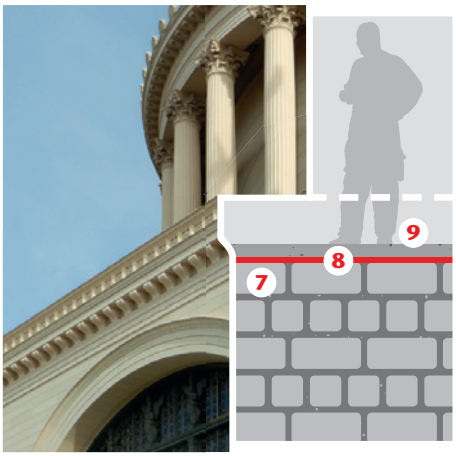
Sealing of accessible roof areas

against surface water

⑦ Exposed and leveled out

⑧ **WEBAC® 4170** applied

⑨ Accessible protective layer applied



St. Nicholas' Church in Potsdam is shining bright in new splendor

Permanent sealing of plinths against surface water

Freshly restored natural stone stairs

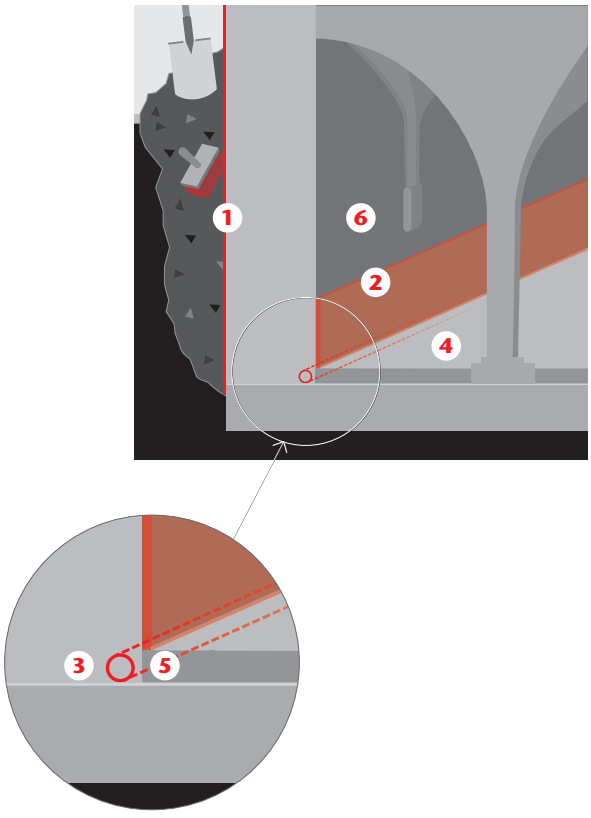
Surface Sealing

Greifswald Town Hall

An eventful history: Greifswald Town Hall was built in 1250 when the town received its town charter. In 1713 it burned down to its foundation, and in the mid-1990s penetrating moisture endangered the historic ribbed vaults.

Protection of the basement from penetrating moisture was of major importance, as the town hall was, among other things, to be used as a guest house and showroom and for the artisan market in the Advent season.

The sealing procedure was carried out in accordance with historical specifications and monument conservation regulations prohibiting the use of materials which may damage the surfaces of the masonry.



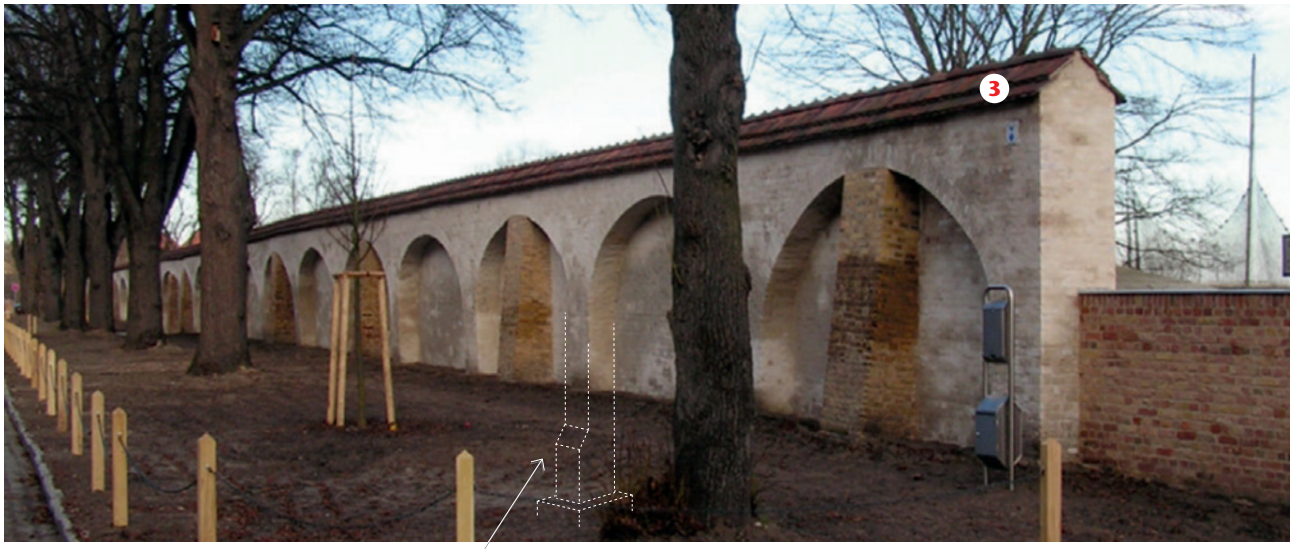
Surface sealing of basement wall

against pressing (ground) water

1. **WEBAC® 5611** applied to exterior wall
2. **WEBAC® 5611** applied to interior wall (up to approx. 50 cm above top edge of floor)
3. **WEBAC® Injection Tube** installed
4. Water resistant concrete floor installed
5. Injection tube injected with **WEBAC® 1403**
6. Interior plaster applied: floor/wall connection (also on **WEBAC® 5611**) for moisture discharge

Potsdam Town Wall

In 2004, the last remains of the almost 300 year old town wall in the garrison town of Potsdam were saved from erosion caused among other things by pressing water and dissolved salts.



Potsdam, enclosed by a town wall since 1733, was expanded by the "Soldier King" Frederick William I in the 18th century. Afterwards, the wall did not primarily serve as a defense wall, but rather as protection from smuggling and desertion of the town's soldiers.

Demolished to a large extent in the early 19th century, the remains are now under a preservation order.

The wall was built from bricks covered with tiles. It consisted of strong pillars connected by arches. Restoration of the original outer appearance and protection from moisture played a key role during the renovation process.

Bonded waterproofing

against pressing (ground) and surface water

1. Masonry exposed and jointing repaired
2. **WEBAC® 5611** applied
3. Fair-faced wall laid with roofing tiles to protect the sealant

Wartburg Castle in Eisenach

The Wartburg Castle is 800 years old and one of the best preserved medieval castles in Germany. However, a few years ago the defense wall made of natural stones could no longer withstand weathering.

To permanently prevent water from penetrating the bond area between the natural stones and the mortar and soaking or increasingly eroding these during frost, the joints and the bond area between the natural stones and the mortar needed to be sealed.

A preliminary examination showed that **WEBAC® 5611** is perfectly suited for this purpose. It adheres to natural stone, resists fluctuating thermal impacts and complies with the requirement of reversibility demanded by monument conservation.

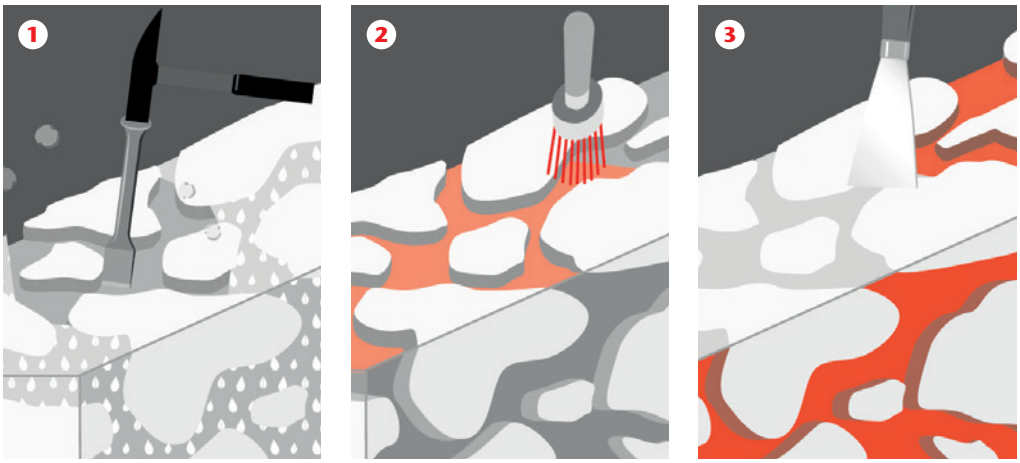
For the restoration of the defense wall the mortar was first removed from the joints down to approx. 5 cm and **WEBAC® 5611** was applied to the jointing mortar and the natural stone joint surfaces. The joints were jointed anew with mortar afterwards and the bond area sealed such that surface water could no longer penetrate.

Sealing of joints

against surface water and moisture penetration

1. Mortar removed from joints (3 – 5 cm deep)
2. **WEBAC® 5611** applied (in at least 2 layers)
3. Joints jointed anew
   (mortar according to formulation)

Wartburg Castle in Eisenach – world-famous not least thanks to Martin Luther

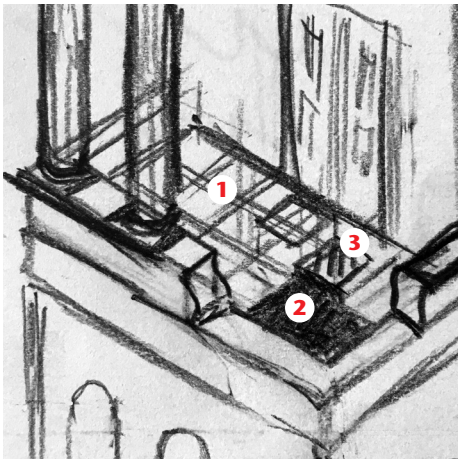


Villa of Widow Persius in Potsdam Botanical Garden

In 1847, the widow of Ludwig Persius moved into the newly constructed house. Today it is used by the University of Potsdam. Over the years surface water had strongly endangered the original floor coverings of the loggia and the balcony.

The villa of widow Persius is situated on the former premises of the court nursery of Sanssouci. The Italian style gem was built to the floor plan of a Latin cross. The two-storied house was provided with a balcony on the eastern side and a loggia with rows of columns on the western side.

When the building was restored the sealants below the coverings of the balcony and the loggia had to be replaced, the original installation heights being observed in order to preserve the access doors.



Bonded waterproofing below historical balcony covering

against surface water

1. Floor exposed and leveled
2. **WEBAC® 5611** applied
3. Historical floor covering installed

Köpenick Town Hall in Berlin

Köpenick Town Hall has a special location – it is exposed to highly fluctuating ground water levels on the banks of the River Spree. In 2013, an examination revealed a defective old sealant containing harmful substances.

Köpenick Town Hall was built in 1905 in Mark Brandenburg brick Gothic style and was extended in the 1920s and 1930s.

During an examination of the external sealants in the town hall courtyard, damage to the tar-containing/bituminous old PAH sealant was noticed. Polycyclic aromatic hydrocarbons are carcinogenic and toxic and therefore harmful for humans and the environment. Installing a new external sealant resistant to pressing water would have meant completely removing the old sealant, which would have been very time-consuming and costly.

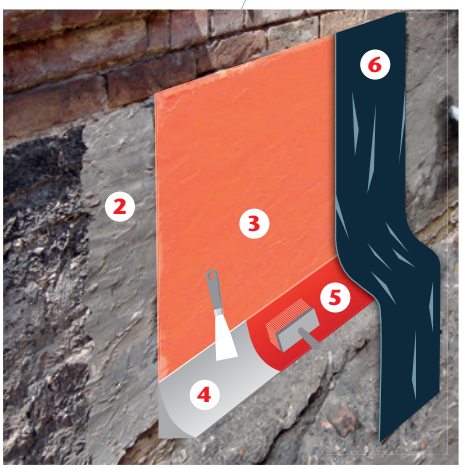
The alternative? **WEBAC® 5611**. It is resistant to both PAH sealants and pressing water and was perfectly suited for the restoration project.

External sealant on top of old sealant

against pressing groundwater

1. Soil excavated, dilapidated structural elements removed
2. Sealing surfaces cleaned
3. Use of **WEBAC® 5611** without cement as primer
4. Concave molding
5. **WEBAC® 5611** (1 mm film thickness) applied
6. Protective layer

during the construction work in the town hall courtyard



left strip: old PAH sealant

Surface Sealing

"Zur Historischen Mühle" (Historic Mill) in Potsdam

The construction of the popular restaurant below the Sanssouci Palace in Potsdam goes back to Emperor Wilhelm II and was completed in 1909. In 1996, the restaurant had to close its doors due to structural decay.

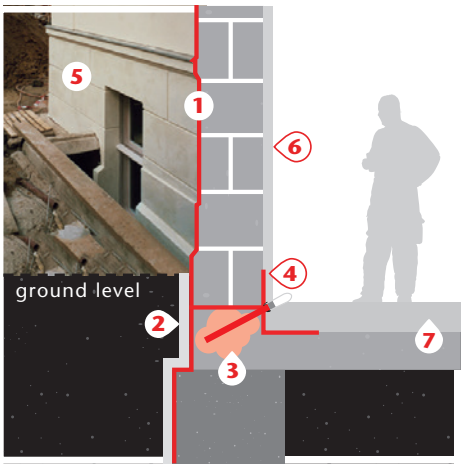
Once again popular: the restaurant "Historic Mill"

The conversion and restoration of the listed building began in 1998. The basement wall structure, the column pedestal and the spray water plinth were sustainably protected from moisture penetration. Within a representative partial area, the historic facade coating had to be provided with a reversible protection. The spray water plinth was protected in accordance with these requirements together with the exterior wall sealing.

Exterior wall sealing

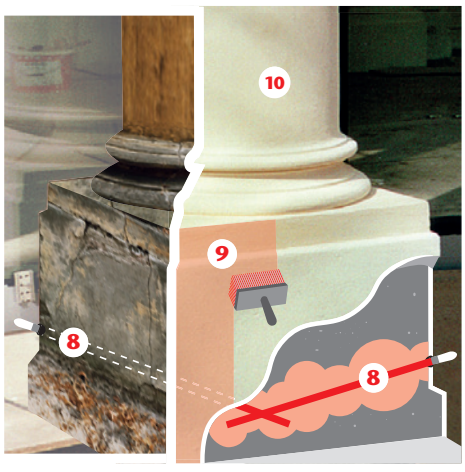
against soil moisture/surface water

1. **WEBAC® 5611** applied from foundation to plinth block top edge
2. Perimeter insulation
3. **WEBAC® 1403** injected (post-construction dpc)
4. **WEBAC® 5611** applied inside
5. KEIM contact paint (lime-casein)
6. Interior wall plaster
7. Bonded screed



Also almost 20 years after its renovation the building looks sparkling new

Part of the historical facade coating was provided with a reversible protection



Plinth sealing

against soil moisture/surface water

⑧ **WEBAC® 1403** injected (post-construction dpc)

⑨ **WEBAC® 5611** applied from foundation to top edge of plinth block

⑩ KEIM contact paint (lime-casein)

Surface Sealing

Biesdorf Castle

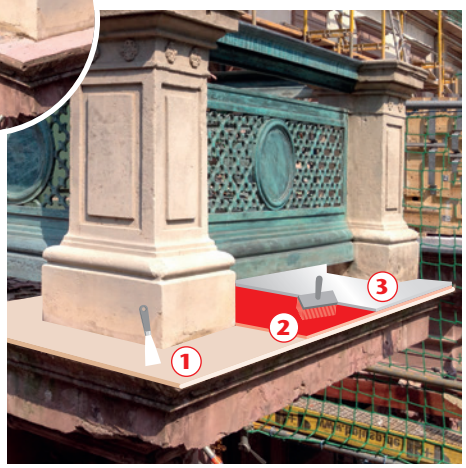
Built in 1868, Biesdorf Castle was the residence of the family Siemens for over 30 years. In 1945 the castle was partially destroyed and exposed to decay until 2002. An elaborate reconstruction followed – also with WEBAC products.

Set in a 14-acre landscape park the building was very progressive at that time: there was electricity, a low pressure steam heater, fire alarm and a shaft pump. The T-shaped floor plan, the columned Pergolas and the octagonal, high tower reveals Italian role models. Today the castle houses the ZKR (Center for Art and Public Space) – a meeting place with changing Exhibitions of international, contemporary painting and to art and culture in the GDR.

Renovation work began in 2002 and was completed in 2016.

Sealing measures with sealing system **WEBAC® 5611** were carried out according to the specifications of the monument protection authority on the tower balconies and the capitals of the pillars of the arcade.

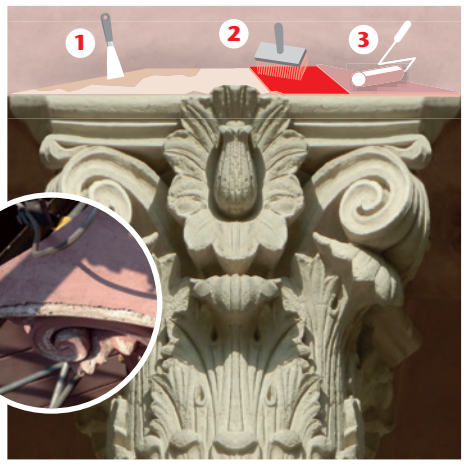
Damages at balcony ceiling



Seal in the composite below historical surface on balconies

against surface water

1. Balcony floors exposed and leveled
2. **WEBAC® 5611** applied
3. Floors covered with sheet metal



Damages at the capitals

Seal in the composite below facade paint

against rainwater (surface water)

1. Column capitals reprofiled and leveled
2. **WEBAC® 5611** applied
3. Facade painted

Biesdorf Castle today

Arcade with restored pillar capitals

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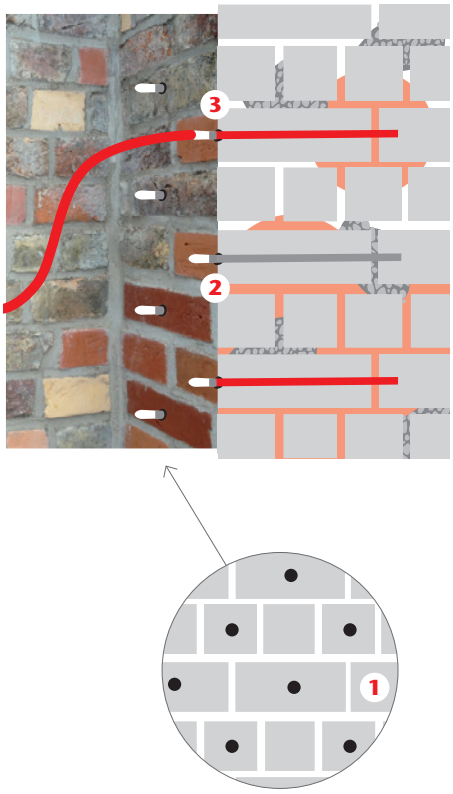
St. Michael's Monastery in Rostock

St. Michael's monastery has experienced a great deal during its more than 500-year history: it was first used as a monastery and printing works and then served as a student residence, arsenal, wool and grain warehouse and even as a transformer station before it was destroyed in the Second World War. In the mid-1990s, the load-bearing capacity of the old walls urgently needed to be increased.



In 1942, the building burnt down completely after an air raid, and it was reconstructed in the 1950s.

In 1994, the west wing was restored and topped up. It was necessary to increase the masonry's load-bearing capacity. Before the restoration, examinations were carried out to assess the suitability of injection agents for consolidating the masonry: a core removal carried out after a sample injection provided information on the structure's strength, and especially on existing cavities and the distribution of the filling material. Additional moisture protection of the joints had also become necessary.

Consolidation and moisture protection

for better load-bearing capacity and against surface water

① Injection holes (regular positioning) drilled

② **WEBAC® 2061** preliminarily injected to fill cavities

③ **WEBAC® 2061** (hydrophobic setting) injected

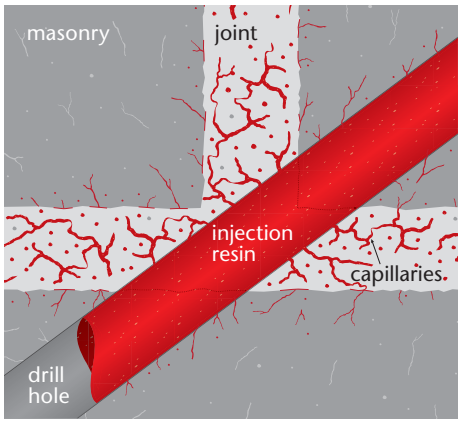
THE DISTRIBUTION OF INJECTION AGENTS ...

... generally takes place in three phases with old masonry:

Gap injection
Filling of construction-related gaps, mortar clefts and cracks

Cavity injection
Filling of cavities, fissures and large pores

Penetration
Penetration into porous structures, small pores and capillary structures



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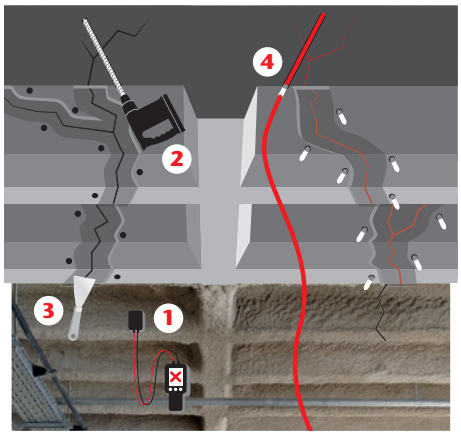
"Bikini" Building in Berlin

The original "Center at the Zoo" in Berlin was vacant for longer than it was used. After 32 years of slumber it was completely gutted and refurbished in 2010. WEBAC products were used to restore the load-bearing capacity of the ceilings and pillars.

The "Bikini" Building was constructed between 1955 and 1957. The low-rise building has 6 floors and is 200 meters long. Originally there were shops in the lower part and production and administrative rooms and offices in the upper part. Its name was quickly coined: an open-sided storey with a view to the greenery on the second floor separates the building into an upper and a lower area, apparently reminding the people of Berlin of a bare midriff in a bikini, hence the name "Bikini".

The "Bikini" Building was closed in 1978 and renovated from 2010 until 2014, and is now known as "Concept Mall Bikini Berlin", a shopping mall with shops, a theater, bars and restaurants.

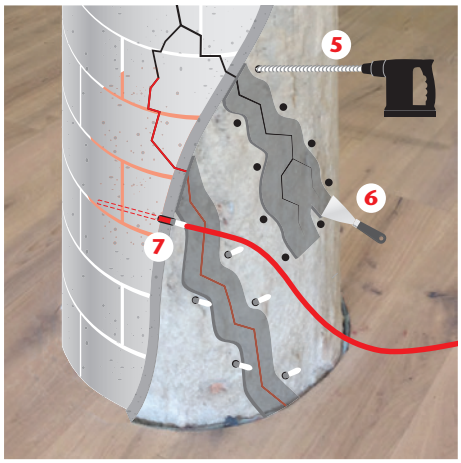
The "Bikini Building" was completely gutted and demolished down to the concrete supporting structure. To restore the load-bearing capacity of the ceiling structure and the supporting pillars, cavities were filled and cracks structurally bonded.



Consolidation of the ceiling structure

Structural filling of cracks –
for better load-bearing capacity

1. Localization of the reinforcement
2. Low-diameter drill holes
3. Mineral patching
4. Epoxy resin **WEBAC® 4110** injected at low pressure



Consolidation of the pillar structure

Structural filling of cracks and cavities –
for better load-bearing capacity

5. Low-diameter drill holes
6. Mineral patching
7. Epoxy resin **WEBAC® 4110** injected at low pressure

Freshly restored "Bikini" Building, 2014

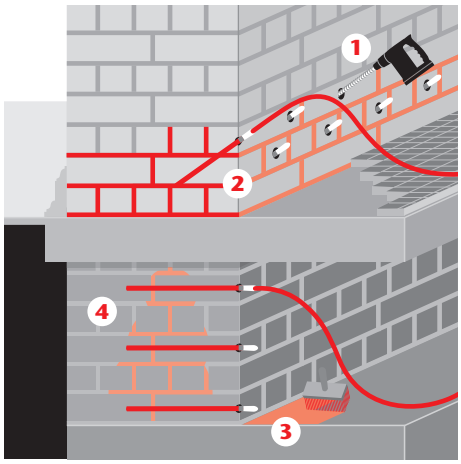
"Neue Wache" (New Guardhouse) in Berlin

The building was designed by Karl Friedrich Schinkel as a guardhouse with detention cells in 1816. Long after its destruction in the Second World War it was transformed into a war memorial in the 1990s. Even high wall thicknesses could be sealed using WEBAC products.

The transformation of the "New Guardhouse" into the Central Memorial of the Federal Republic of Germany for the Victims of War and Dictatorship took place within six months. The "New Guardhouse" was inaugurated on Remembrance Day 1993.

During the conversion the narrow passages and the enormous wall thickness presented a major challenge. It was only with purpose-built drills that the experts could attain the drill hole depth of up to 170 cm required for the injection. The elastic, low-viscosity polyacrylate gel **WEBAC® 250** was used for the damp proof course (dpc). The engineers also relied on WEBAC products for sealing the floor and used the bituminous acrylate dispersion **WEBAC® 5611**. The ground floor was renovated from September 1998 to January 1999. The basement was renovated from March to April 2000.

The "New Guardhouse" in Berlin is the Central Memorial of the Federal Republic of Germany for the Victims of War and Dictatorship.



Post-construction damp proof course (dpc)

against rising moisture

① Injection holes (regular positioning) drilled

② **WEBAC® 250** injected

Bonded waterproofing of joints

For protecting the historic building fabric against rear-side moisture penetration

③ **WEBAC® 5611** applied

Surface sealing of exterior basement walls

against extensive moisture penetration

④ Injection holes drilled and **WEBAC® 250** injected

Leaning Tower in Bad Frankenhausen

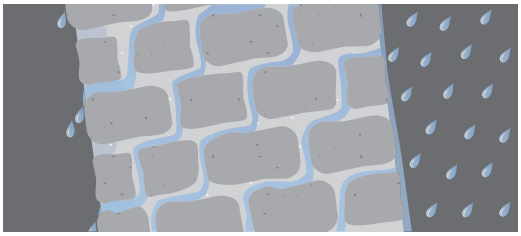
At almost 5°, the leaning tower in Bad Frankenhausen is even more inclined than the Leaning Tower of Pisa. In 2015, the approximately 640-year-old building could finally be stabilized, but further protective measures needed to be implemented on the inclined wall surfaces. This task could also be mastered using WEBAC products.

The steeple of the Oberkirche church in Bad Frankenhausen was built on geologically unstable ground in 1382. Over the past 100 years alone the overhang of the 56 meter high tower had almost tripled at 5.60 m.

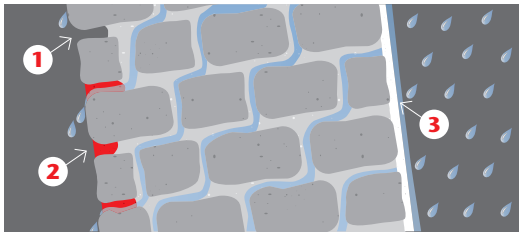
Today, it is therefore much more "crooked" than the Leaning Tower of Pisa. In 2015, the building was stabilized by supporting scaffolding and the outer masonry restored afterwards. Nevertheless, further protective measures had to be carried out on the inclined wall surfaces to prevent moisture from penetrating into the masonry due to rainwater and to statically stabilize the inner wall shell – affected by erosion. The mortar joints in some areas were thus provided with drill holes and filled with drainage mortar consisting of epoxy resin **WEBAC® 4270** and quartz sand.

This measure served to stabilize the masonry on the one hand, and penetrating water can now also be drained via channels. Joint ruptures and frost damage could also be prevented in the long run.

New gypsum render on the inclined wall surface



Before



After

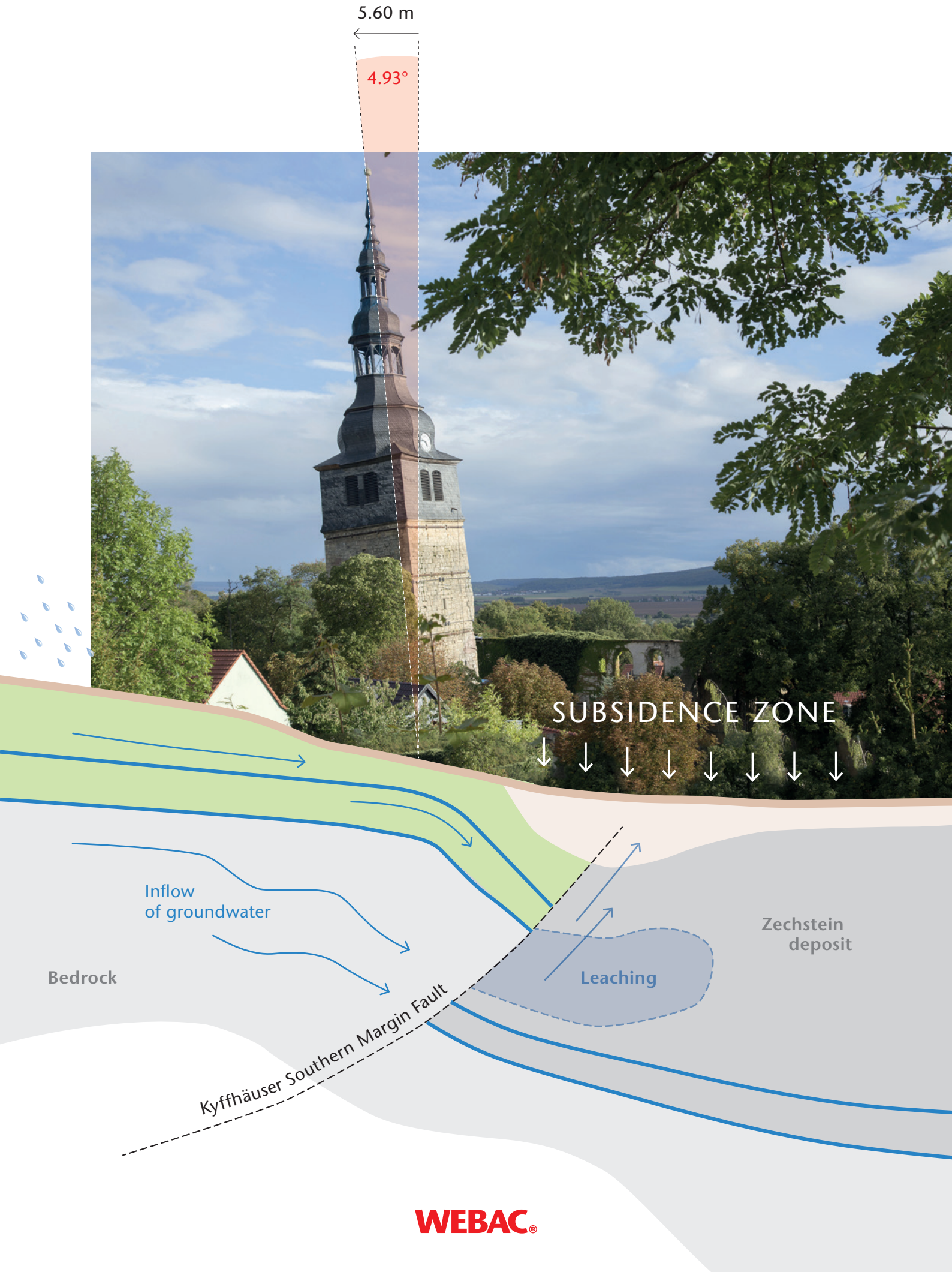
Masonry stabilization
(gypsum mortar masonry)

better moisture protection, static stabilization

① Stripping of joints

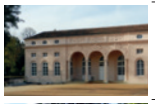
② New pointing of joints using drainage mortar **WEBAC® 4270** and quartz sand (grain size > 1.2 mm)

③ Covering the outer wall surfaces with gypsum render


5.60 m
4.93°
SUBSIDENCE ZONE
Inflow
of groundwater
Bedrock
Leaching
Zechstein
deposit
Kyffhäuser Southern Margin Fault

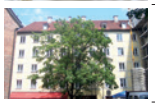
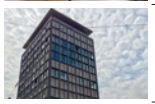
WEBAC®

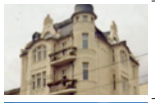
Matrix: Project/Application

		Bonded waterproofing & surface sealing, protective layer beneath facade coatings: **WEBAC® 5611**	Post-construction dpc, filling of cracks/cavities, waterproofing of building fabric: **WEBAC® 150, 1401, 1403, 1610**	Consolidation of masonry, foundation consolidation: **WEBAC® 1403, 1660, 4110, 5611**	Bonded waterproofing & surface sealing: **WEBAC® 5611**, dpc: **WEBAC® 1401, 1403**	Filling of cracks, structural bonding: **WEBAC® 4110, 4170**	Sealing of outer side of structures, waterproofing in the building fabric: **WEBAC® 240, 250**	Bonding, jointing: **WEBAC® 4525**	Consolidation of masonry, mineralizing pore filler: **WEBAC® 2061**	Filling of cavities, sealing, waterproofing, stabilizing: **WEBAC® 2260**	Stabilization of tamped concrete: **WEBAC® 1660**
	St. Nicholas' Church Potsdam	✓									
	"Südtorgebäude" (Gatehouse) Sanssouci Potsdam	✓									
	Restaurant "Zur Historischen Mühle" (Historical Mill) Potsdam	✓			✓						
	Greifswald Town Hall	✓									
	Botanical Institute Rostock	✓									
	Wartburg Castle, Eisenach	✓									
	Fountain "Pferdetränke" Sanssouci Potsdam	✓					✓				
	Botanical House Sanssouci Potsdam	✓									
	Potsdam Town Wall	✓									
	Hildburg Fortress	✓									
	Fortuna Portal Potsdam (in front of St. Nicholas' Church)	✓									
	Potsdam City Villa	✓									
	"Zeughaus" (Armory) Berlin	✓									
	Köpenick Town Hall, Berlin	✓									

		Bonded waterproofing & surface sealing, protective layer beneath facade coatings: **WEBAC® 5611**	Post-construction dpc, filling of cracks/cavities, waterproofing of building fabric: **WEBAC® 150, 1401, 1403, 1610**	Consolidation of masonry, foundation consolidation: **WEBAC® 1403, 1660, 4110, 5611**	Bonded waterproofing & surface sealing: **WEBAC® 5611**, dpc: **WEBAC® 1401, 1403**	Filling of cracks, structural bonding: **WEBAC® 4110, 4170**	Sealing of outer side of structures, waterproofing in the building fabric: **WEBAC® 240, 250**	Bonding, jointing: **WEBAC® 4525**	Consolidation of masonry, mineralizing pore filler: **WEBAC® 2061**	Filling of cavities, sealing, waterproofing, stabilizing: **WEBAC® 2260**	Stabilization of tamped concrete: **WEBAC® 1660**
	Potsdam City Villa	✓									
	"Löwenbräukeller", Munich	✓									
	Biesdorf Castle	✓									
	"Berliner Dom" (cathedral)		✓								
	"Märchenvilla", Eberswalde		✓								
	"Sonnenstein" Castle, Pirna		✓								
	Friedrich-Ebert-Gymnasium Potsdam		✓		✓						
	Semper Opera House Dresden		✓								
	Lichtenberg Waterworks, Berlin		✓								
	Ministry of Justice, Berlin		✓								
	Bad Doberan Gatehouse		✓								
	Bautzen City Museum		✓								
	Dresden Central Station		✓								
	New Synagogue, Berlin		✓								

Matrix: Project/Application

		Bonded waterproofing & surface sealing, protective layer beneath facade coatings: **WEBAC® 5611**	Post-construction dpc, filling of cracks/cavities, waterproofing of building fabric: **WEBAC® 150, 1401, 1403, 1610**	Consolidation of masonry, foundation consolidation: **WEBAC® 1403, 1660, 4110, 5611**	Bonded waterproofing & surface sealing: **WEBAC® 5611**, dpc: **WEBAC® 1401, 1403**	Filling of cracks, structural bonding: **WEBAC® 4110, 4170**	Sealing of outer side of structures, waterproofing in the building fabric: **WEBAC® 240, 250**	Bonding, jointing: **WEBAC® 4525**	Consolidation of masonry, mineralizing pore filler: **WEBAC® 2061**	Filling of cavities, sealing, waterproofing, stabilizing: **WEBAC® 2260**	Stabilization of tamped concrete: **WEBAC® 1660**
	Former Cigarette Factory, Dresden		✓								
	Historical Farm, Samerberg		✓								
	Munich Rectory "Zu unserer lieben Frau"		✓								
	"Sisi" Castle, Aichach		✓								
	Günzlhofen Church		✓								
	"Villa Buchenhof", Bad Reichenhall		✓	✓							
	Building in Einsteinstraße Munich		✓								
	"Maximilianeum" (Bavarian State Diet)		✓								
	Bergedorf Castle		✓				✓				
	Hamburg "Fischmarkt" (Fish Market)		✓								
	Hohenkammer Castle		✓								
	Project 7, Munich		✓								
	Mindelzell Church			✓							
	Kranzberg Waterworks			✓							

		Bonded waterproofing & surface sealing, protective layer beneath facade coatings: **WEBAC® 5611**	Post-construction dpc, filling of cracks/cavities, waterproofing of building fabric: **WEBAC® 150, 1401, 1403, 1610**	Consolidation of masonry, foundation consolidation: **WEBAC® 1403, 1660, 4110, 5611**	Bonded waterproofing & surface sealing: **WEBAC® 5611**, dpc: **WEBAC® 1401, 1403**	Filling of cracks, structural bonding: **WEBAC® 4110, 4170**	Sealing of outer side of structures, waterproofing in the building fabric: **WEBAC® 240, 250**	Bonding, jointing: **WEBAC® 4525**	Consolidation of masonry, mineralizing pore filler: **WEBAC® 2061**	Filling of cavities, sealing, waterproofing, stabilizing: **WEBAC® 2260**	Stabilization of tamped concrete: **WEBAC® 1660**
	Linderhof Castle			✓							
	Leaning Tower in Bad Frankenhausen			✓							
	"Nymphenbad", Dresden				✓						
	Building in Dutch Quarter, Potsdam				✓						
	Hildburghausen City Theater				✓						
	"Bikini" Building, Berlin					✓					
	Gasometer, Dresden					✓					
	Dresden Royal Palace					✓					
	Oberbaum Bridge, Berlin					✓					
	Erlwein Storehouse, Dresden					✓					
	Church "Frauenkirche", Dresden					✓					
	Niederfinow Ship Canal Lift					✓					
	Potsdam City Villa					✓					
	Dresden-Neustadt Railway Station					✓					

Matrix: Project/Application

		Bonded waterproofing & surface sealing, protective layer beneath facade coatings: **WEBAC® 5611**	Post-construction dpc, filling of cracks/cavities, waterproofing of building fabric: **WEBAC® 150, 1401, 1403, 1610**	Consolidation of masonry, foundation consolidation: **WEBAC® 1403, 1660, 4110, 5611**	Bonded waterproofing & surface sealing: **WEBAC® 5611**, dpc: **WEBAC® 1401, 1403**	Filling of cracks, structural bonding: **WEBAC® 4110, 4170**	Sealing of outer side of structures, waterproofing in the building fabric: **WEBAC® 240, 250**	Bonding, jointing: **WEBAC® 4525**	Consolidation of masonry, mineralizing pore filler: **WEBAC® 2061**	Filling of cavities, sealing, waterproofing, stabilizing: **WEBAC® 2260**	Stabilization of tamped concrete: **WEBAC® 1660**
	Museum, Dresden					✓					
	Munich Olympia Terrain					✓					
	”Neue Wache” (New Guardhouse), Berlin						✓				
	"Admiralspalast", Berlin						✓				
	Bornstedt Crown Estate						✓				
	Potsdam Kaiser Station						✓				
	Passage, Dresden						✓				
	Lichtenwalde Castle						✓				
	Hartenfels Castle, Torgau						✓				
	Bad Muskau Castle						✓				
	Spandau Citadel, Berlin						✓				
	Heringsdorf Railway Station						✓				
	Bellevue Castle, Berlin						✓				
	Dresden Brühls’ Terraces						✓				

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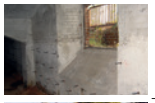
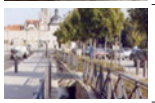
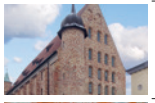
	"Salzstadel", Rosenheim						✓				
	Memorial, Neuengamme						✓				
	Streambed, Mühlhausen							✓			
	St. Michael's Monastery								✓		
	Mural, Erfurt									✓	
	Residential Complex (former farmhouse)										✓

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Space for your notes

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