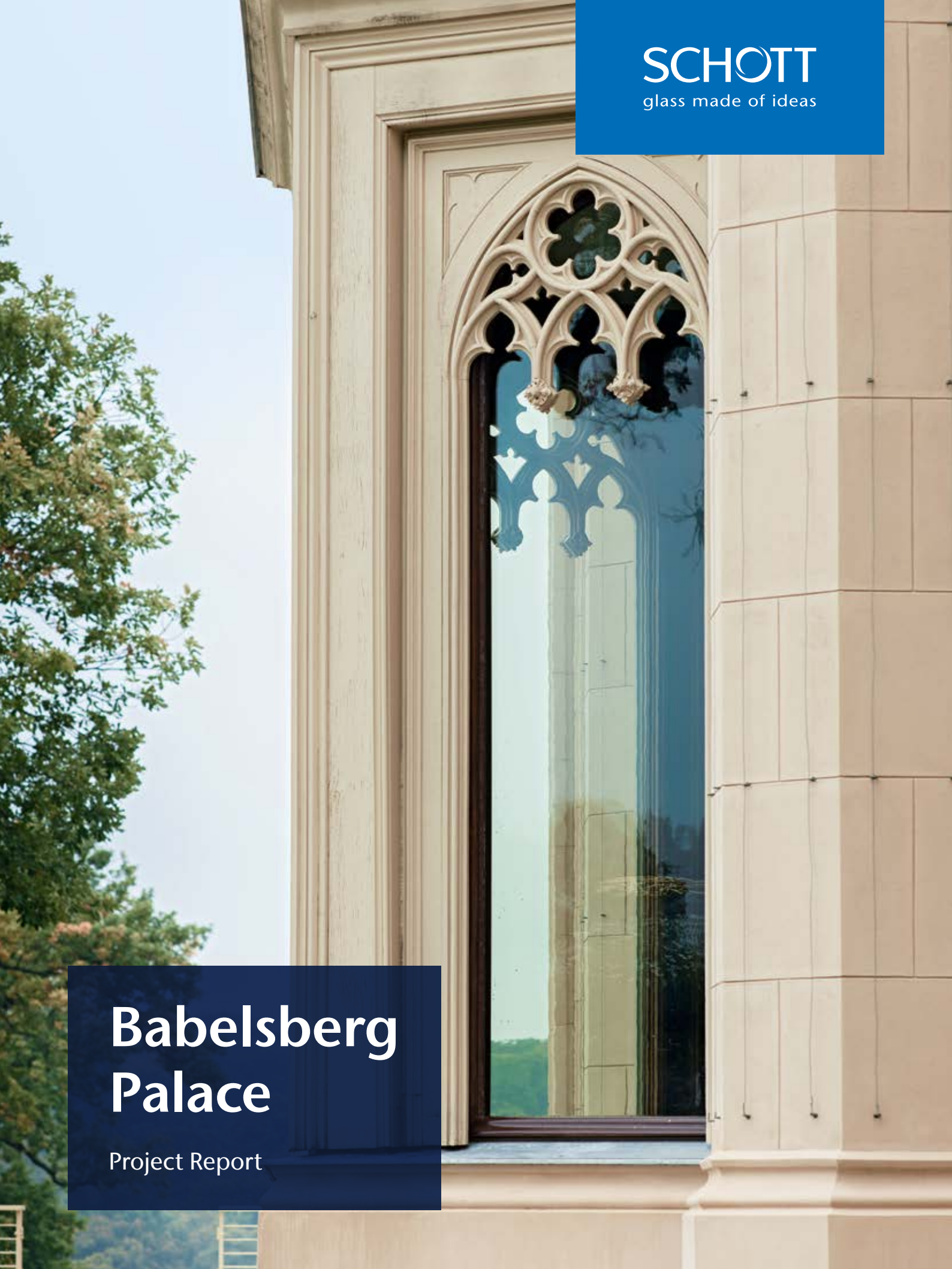
SCHOTT
glass made of ideas



Babelsberg Palace

Project Report

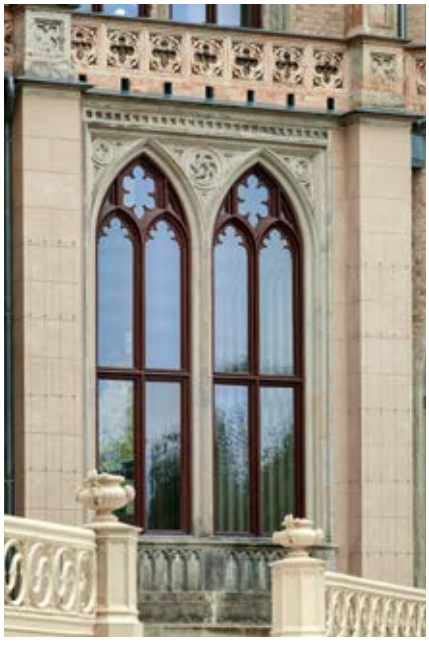
Restored building façade brings old splendor to world heritage site

Babelsberg Palace in Potsdam, Germany, shines again in imperial splendor after a 3 year restoration of its façade that placed high demands in the area of monument protection. During the renovation of the striking window surfaces, SCHOTT mastered tricky challenges with its GOETHEGLAS.

The Background

The prominent Prussian architect Karl Friedrich Schinkel, his pupil Ludwig Persius, and the architect Heinrich Strack erected Babelsberg Palace in two construction sections between 1833 and 1849 for the future emperor Wilhelm I. The summer residence in neo-Gothic style spared no expense on façade materials such as brick, natural stone, terracotta, Roman cement, and zinc castings. The 380 different exterior door and window elements make for a real eye catcher, with a glazed area of 550 m^2 (5,920 sqft.) including large format all glass windows that offer an unobstructed view of the magnificent natural park.

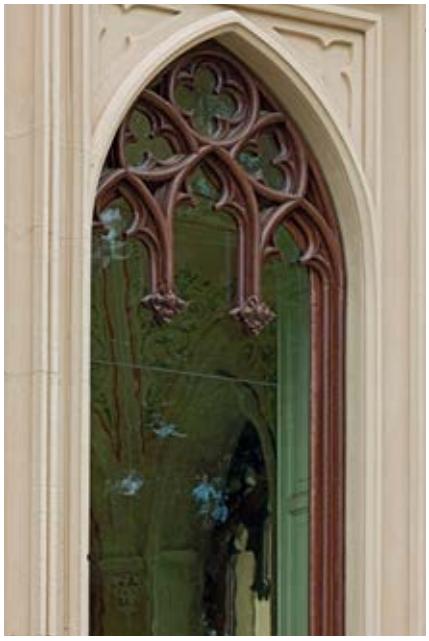
After the death of Wilhelm I, the imperial palace was used in a variety of ways, but the construction material was neglected. Owned by the Prussian Palaces and Gardens Foundation Berlin-Brandenburg (SPSG), Babelsberg Palace and Park have now been UNESCO World Heritage sites since 1990. The Foundation wants to use the monument as a museum again in the future and designed a master plan for the restoration of both the palace and the park, which began in 2013 with the restoration of the exterior.



The Challenge

The task of exterior restoration came with rigid conservation requirements, considering the diverse building materials and styles, differing periods of material origin, execution standards, and conservation conditions. This challenge pertained particularly to the historical windows, which remained largely intact, but were severely impaired by years of reconstructions and additions, including the addition of new window levels and the use of modern float glass. The impressive large scale glazing was damaged during World War II and equipped with glazing bars and transoms to subdivide the window surface during repair.

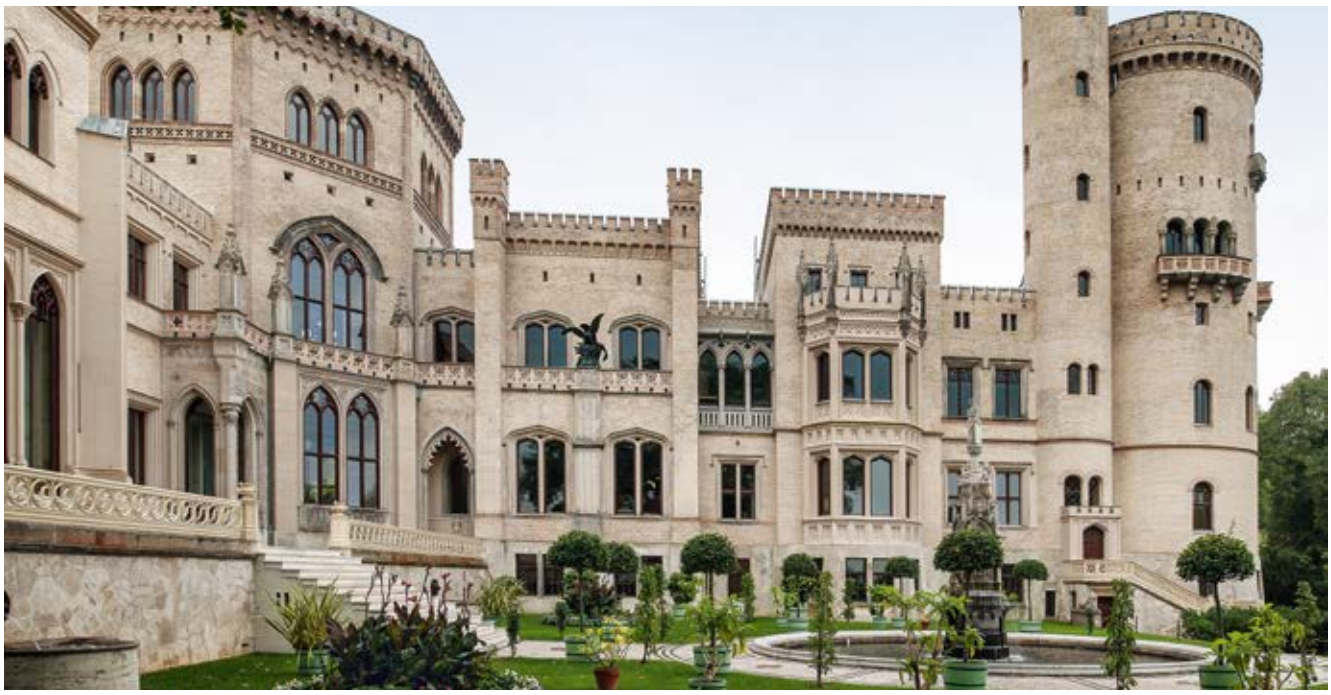
Such subsequent, stylistically inappropriate changes had to be removed according to the master plan. Historical glazing was to be maintained as much as possible, while float glass was to be replaced by a more authentic glass with a slightly wavy appearance. Besides historic preservation aspects, modern construction and energy requirements had to be taken into account. After all, the renovation was ultimately aimed at making the building usable as a museum.



The Solution

After carefully examining samples, the building owners and the architects from Dr. Krekeler Generalplaner GmbH in Brandenburg chose GOETHEGLAS from SCHOTT as their glass for restoration. The special Fourcault production process gives the colorless drawn glass the irregular surface characteristic of window glasses from the 18th and 19th centuries. At the same time, it enables modern functions such as UV protection and thermal insulation and can be further processed into insulating glass, laminated glass, or tempered glass.

SCHOTT's processing know how was a decisive factor for achieving the planned glazing solutions. For example, SCHOTT produced GOETHEGLAS three meters long for the Babelsberg project, refined by means of thermal pre-stressing and subsequent heat soaking tests.



This allowed for a large share of the all glass windows to be installed. The 4.5 meter (14.8 ft.) high special formats on the main floor of the palace were designed as laminated glass with butt joints. In addition, insulating glass with an outer pane made of GOETHEGLAS and an inner pane made of float glass was produced to address specific climatic concerns.

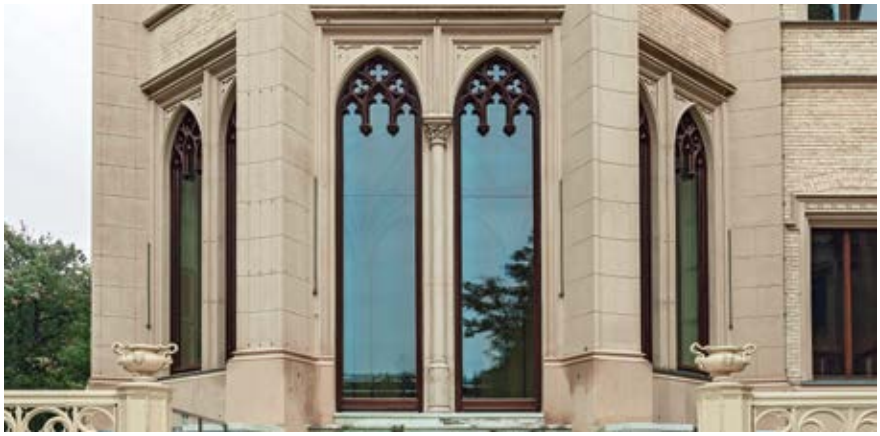
Although all SCHOTT glass for restoration variants have European technical approval that regulates the framework conditions and characteristic bending strengths, glass structural engineers from SuP Ingenieure GmbH in Darmstadt were contracted to examine the suitability of the glazing from a static perspective. The all glass and laminated glass windows therefore meet the safety requirements of ESG-H glazing and have received extensive approvals from the building authorities.

“SCHOTT was the only company to offer a three meter glass for restoration with the matching aesthetics at the time of planning. In close collaboration, we were also able to meet the high demands of monument protection as well as the static, energetic, and constructional challenges that pertain to insulation and composite glass solutions. We are very grateful for this because we have received positive feedback on the result from all sides.”

Stefan Gubelt, Dr. Krekeler Generalplaner GmbH, Berlin

Statement from the building owners: “We wanted to have a glass for restoration that would attract the attention of viewers, but with a wavy appearance that is less obtrusive. We are very pleased with our decision in favour of SCHOTT and its GOETHEGLAS, especially since the refurbishment of the glazing had to meet a wide range of requirements.”

Max Daiber, Project Head at the Prussian Palaces and Gardens Foundation Berlin-Brandenburg



The Material

- GOETHEGLAS / 4.5 mm (0,18") thick
- With thermal tempering and heat soaking
- As laminated glass with laminated GOETHEGLAS and butt joints
- As insulating glass with 6 mm and 8 mm (1/4" and 5/16") spacer

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