Sandstones at the historical “Berlin City Palace“

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The „Berlin City Palace“ was the main residence of the margraves and electors of Brandenburg and later of the kings of Prussia and the German Emperors. It was situated on the Spree island in the historical centre of Berlin, today Mitte district..

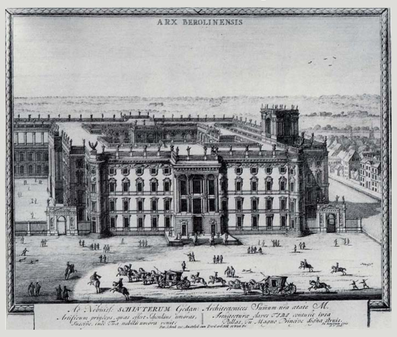
Building Phases

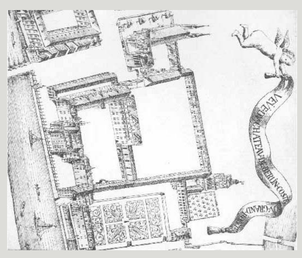
Castle
15th century

1443 building of a castle by the elector Friedrich II. „Eisenzahn“: „.. raw sandstone -ashlars in the ground floor…“

Elector Joachim II. had removed nearly the whole castle in the **16th century** and had built a magnificent and significant Renaissance Palace by the master builders Caspar Theiss and Kunz Buntschuh

Renaissance Palace
17th century





Elector Friedrich III. (since 1701 King Friedrich I. of Prussia) ordered the extension of the palace to a baroque residence. architects: Andreas Schlüter, Johann Eosander von Göthe, Martin Böhme

1853 building of the cupola by Friedrich August Stüler and Albert Dietrich Schadow

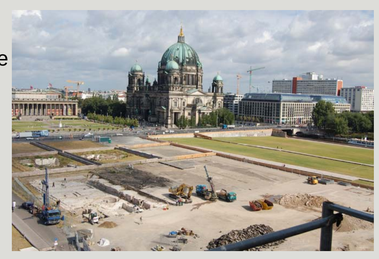
Baroque Palace
18th century

Baroque Palace with National Monument
19th/ 20th century

1950 demolition of the heavely damaged palace

Integration of the portal IV into the new building of the state council of the GDR

Portal IV
1961



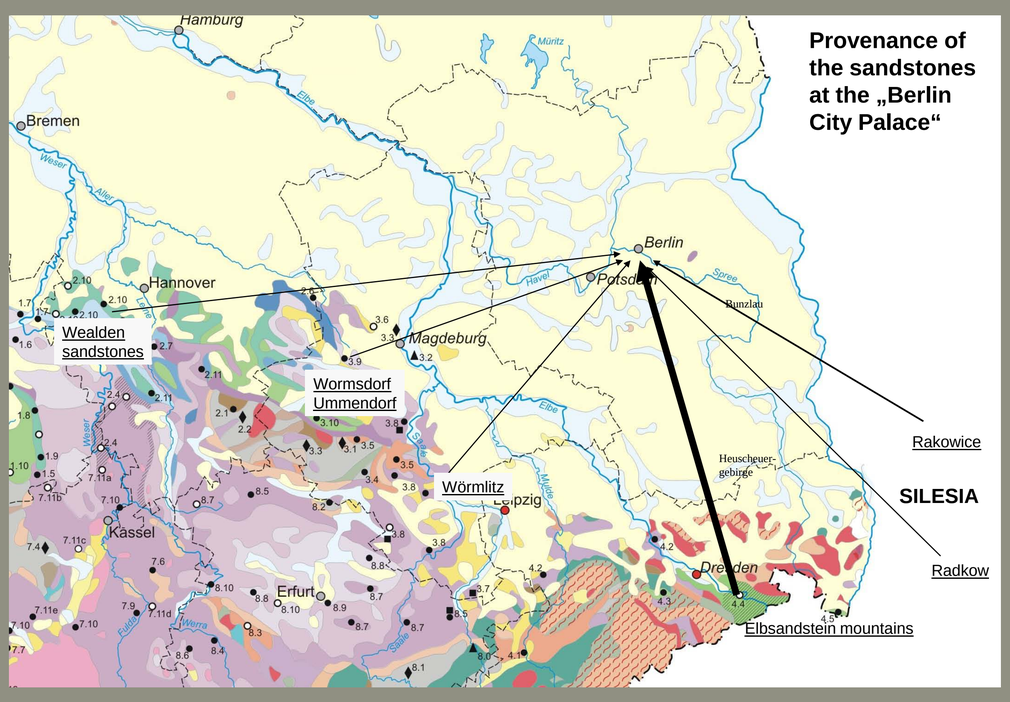
2002 Bundestag - enactment to rebuild the facades of the palace

2008 decision for the concept of the architect Francesco Stella

Plan for rebuildung
21th century

S a n d s t o n e s

The historical facades of the palace had been composed of plastered bricks with architectural and sculptural elements made of sandstones.The current knowledge concerning the use of sandstones at the historical Berlin Palace(s) is based on literature and self conducted provenance analyses for 42 remaining sandstone pieces by mobile non-destructive IR-spectroscopy. Several sculptures and other valuable building elements had been removed and stored before the demolition of the palace in 1950. They had been stored at many places: in museums and their depots, in parks, in private gardens or they had been reused in example for the wall around the Märkisches Museum.



Provenance of the sandstones at the „Berlin City Palace“

Erster Arbeitsplatz der Werkstatt Wimmel auf dem Lustgarten in Berlin am Ufer des Spreearmes, der seinerzeit quer über den Lustgarten floß. Im Hintergrund das Königliche Schloß.

Workplace of the stone mason factory Wimmel near the Berlin palace at the river Spree (end of 18th century)

There is nothing known about the origin of the sandstones at the ground floor of the first castle. Sandstones from the **Elbsandstein Mountains in Saxony** have been used since the **17th century.** They could be transported via the rivers Elbe, Havel and Spree.
Looking for building material the architect Schlüter bought a sandstone quarry in **Wörmlitz** (near Halle/S.) about **1700.** These sandstones had been used only for a short time because of their instability.
During the reign of Friedrich II it was forbidden to use Saxonian rocks for Prussian government buildings. All repair work and constructions were made with **Rhaetian Sandstone** from **Wormsdorf / Ummendorf** SW of Magdeburg, until the death of Friedrich II in 1786. Parallel in the 18th century **Wealden-Sandstone** from Deister, Nesselberg and Bückeberg (Obernkirchen) was used as well – apparently for sculpting, in particular.
After a reinitiated utilization of **Elbe Sandstones** for about 100 years, **Silesian Sandstones** were used for all major restoration actions with extensive stone exchange **starting from 1880**.

I n v e s t i g a t e d O b j e c t s b y m o b i l e n o n - d e s t r u c t i v e I R - S p e c t r o s c o p y

Bunter Sandstone

Ram‘s head
Förderverein Schloss e.V.

Rhaetian Sandstone

Woman‘s head
Märkisches Museum

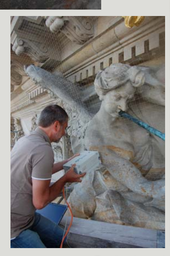
Wealden Sandstone

Relief „Belief, Love, Hope“
Märkisches Museum

Capital
Depot

Elbe Sandstones

Piece of the basement
Schlossplatz



Original pieces of the Portal IV
former Staatsrat building of GDR

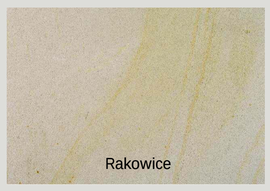
Sculpture
Depot

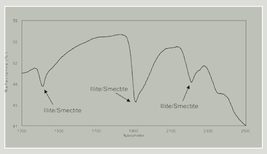
Atlas
Bodemuseum

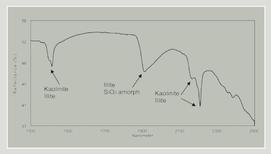
Silesian Sandstones

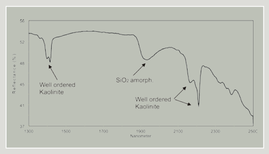
Apollo
Depot

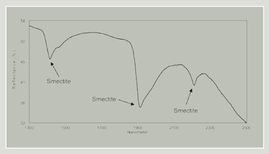
Eagle‘s head
Förderverein Schloss e.V.











The non-destructive IR-spectroscopy operates in the near infrared region (NIR) by activating chemical bonds. All common clay minerals and carbonates characterising sandstones and governing their qualities can be reliably determined. Sulphate minerals, mica, limonite, and amorphous silica are detectable too.
Provenance analyses of sandstones by NIR are based on the fact that sandstones in different stratigraphical horizons and regions show very special clay mineral compositions and -crystallisations. By overlapping the spectral features of each mineral - position and intensity as well as shape and geometry of absorption bands - the spectrum of any sandstone is characteristically formed.
Up to the present, more than 800 digital reference spectra of building sandstones of Germany and adjacent areas have been collected.

BGR Bundesanstalt für Geowissenschaften und Rohstoffe
GEOZENTRUM HANNOVER