

26728

Investigation of Sultana and Sultan Hamam Walls at Topkapı Palace with Non-destructive GPR-CX Method

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SUMMARY

Hamam structures, which hold an important place in the Ottoman Imperial and public, are notable for its architecture as well as durability. Sultana and Sultan Hamam at Topkapı Palace is one of the most important Hamam in Ottoman History, which constructed centuries ago. To investigate the robustness of this Hamam by non-destructive examination with the GPR-CX (Ground Penetrating Radar – Concrete Exploration) method was carried out.

Mainly GPR-CX method was improved for investigate modern concrete walls and systems, as well as the high resolution and speed with non-destructivity made the system suitable for ancient buildings. In this study 2.3 GHz HF antenna was conducted with a 100x100 cm grid area to all the walls of Hamam and the Tubulis (heat duct), lead water pipes etc. were discovered. In addition the metal clamps of wall connections were also found and contributed to the static studies.

By courtesy of non-destructive GPR-CX method, many unknown data were put forward about Hamam, which were constructed at 1460 AD.

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