



GPR applications for the assessment of stonework building facades

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A large number of stone clad buildings (historic or modern) are present in our cities.

Their restoration, maintenance and rehabilitation do require preliminary and mandatory inspections to gain an exhaustive understanding of the building construction details and of damaged areas. The knowledge of the mechanic behavior plays indeed an essential role in the damage/failure prevention and for safe building structure modifications.

GPR is a very unevaluable technique for a non-destructive, cost-effective, and efficient assessment that can lead to an extensive knowledge of the construction details minimizing the number of necessary intrusive surveys.

We present two case-studies where GPR was successfully and extensively applied to the assessment of stonework construction on building facades: the first case is the tower of a Church built in the first half of the 18th century whilst the second one is related to an early 20th century 7-storey building.

Both exhibit cracks and spalled stones due to the corrosion of the pins, cramps and metal structural elements (such as steel beams and columns).

The façades were surveyed with a 2.0 GHz antenna to locate the exact position of any embedded steel elements supporting the stonework.