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Title:

New uses of NDE techniques including Surface Penetrating Radar (SPR) and Infrared Thermography (IRT) for the Investigation of Adobe structures

Abstract:

Obtaining accurate information for historically important buildings is a critical step prior to developing the remedial / restoration strategy. Buildings constructed of adobe are a major part of the International built environment. Preservation of adobe structures and a better understanding of how they should be maintained or repaired is critical.

Adobe construction is typically load-bearing with unfired mud bricks with limited structural strength, and very thick walls. This can be misleading, especially when the adobe material is hidden behind stucco or interior plastered finishes and can be deteriorated both at the outer extremities and within the heart of the wall. Another factor for consideration is hidden openings, which may have been covered by new coats of plaster or stucco or may remain open within the wall, reducing its overall structural capacity.

Traditionally, assessing adobe buildings has been traumatic necessitating probes into the fabric to provide a structural assessment. This damages the historic fabric, disrupts the building occupants and provides information only where exposure has been made.

Case studies of innovative and combined uses of Non Destructive Evaluation NDE techniques have provided a wealth of knowledge of adobe structures with minimum disruption. Information capture includes construction arrangement, hidden openings, framing, embedded timbers, voiding / delamination extent within the adobe walls, retained moisture, voiding behind surface plaster, moisture routes through the site and walls.

The data allows a focused repair strategy to be developed, determines future maintenance requirements, documents and records the current structure and provides a better understanding the building's history.