

## PROJECT

Benjamin-Powell Smokehouse  
Colonial Williamsburg, Virginia

## CLIENT

Colonial Williamsburg Foundation  
Williamsburg, Virginia

*Right:* The Benjamin-Powell  
Smokehouse.



## PROJECT DESCRIPTION

The brick masonry smokehouse adjacent to the Benjamin-Powell House in Colonial Williamsburg, Virginia had suffered severe deterioration of both brick and mortar due, apparently, to crystallization of salts. Mortar deterioration was so severe that repointing of the mortar joints was required almost semi-annually. Due to the irregular patterns and rate of deterioration, architectural conservators were hesitant to implement conservation measures without a clear definition of the extent and source of the damage and the mechanism of deterioration.

Atkinson-Noland conducted a complete ultrasonic and mechanical pulse stress-wave transmission survey of the structure to identify subsurface faults and material loss. Results were presented in terms of pulse velocity contours which were then interpreted in conjunction with results of Prompt Neutron-Gamma analyses of the same walls. The diagnostic analysis indicated that the mechanism of deterioration was not that originally hypothesized by the restoration architects, and that a revised restoration plan was required.

## SERVICES PROVIDED BY ATKINSON-NOLAND

- Ultrasonic pulse velocity survey
- Coordination with restoration architects and other structural analysts
- Presentation of wave-transmission contour map
- Identification of deterioration mechanisms
- Mechanical pulse velocity survey



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