



**PROJECT DATA SHEET:
C&O Canal National Historical Park**

**HELPING CHANGE THE WAY THE NATIONAL PARK SERVICE UTILIZES ITS
HISTORIC BUILDINGS**



***Masonry Solutions
International, Inc.***

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Repair and enhance without changing the aesthetics.



C&O Canal National - Lockhouse 22

Location: Potomac, MD

Age: Circa 1830

Key Topics: Historic stabilization,
façade repair, adaptive reuse, NDE,
CIF injection, stainless reinforcement

Project Background:

- The Chesapeake and Ohio Canal National Historic Park, located along the C&O Canal's original 184.5 mile footprint, is a United States National Historical Park that hosts over 3 million visitors every year
- The park was established as a National Monument in 1961 by President Dwight D. Eisenhower and taken over by the National Park Service in 1971
- Lockhouse 22 is a member of the National Register of Historic Places and one of the park's earliest structures
- As part of the innovative new Canal Quarters program, park managers undertook efforts to preserve and restore Lockhouse 22 with the goal of renting it nightly to a variety tourists and history enthusiasts



Challenges Presented:

- Over its long lifetime, the lockhouse's façade become unstable to the point of serious concern, with separation between the masonry wythes and crumbling mortar
- Any intervention would need to be in keeping with the Secretary of Interior's Standards for the Treatment of Historic Properties/Preservation





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Services and Solutions:

- Masonry Solutions started by evaluating the façade using non-destructive evaluation, allowing the project team to figure on the most effective course of intervention
- Large inner voids were uncovered during the course of this evaluation, leading to the determination that injection would be the most appropriate solution
- Masonry Solutions laboratory engineers then developed a compatible injection material that was sympathetic to the host's particular characteristics
- MSI technicians, following a low-pressure injection protocol, safely injected the building's entire façade
- The original deteriorated mortar, which had little bond or stability, was encapsulated and inner voids were impregnated during the compatible injection, restoring the original characteristics of the structure
- Stainless steel reinforcements were also carefully installed by MSI technicians to provide lateral support
- Further NDE demonstrated the solidity of the masonry units and the achievement of all project goals
- Close coordination with the National Park Service was maintained throughout the process
- Following MSI's intervention, Lockhouse 22 was the first in the Canal Quarters program to host an overnight guest
- Today the program has been expanded to include several structures and is the recipient of multiple awards



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Masonry Solutions International has worked in the field of masonry preservation and enhancement for over 20 years. It has pioneered a number of advanced techniques, including compatible masonry injection and undercut fabric anchorage.