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Jeff Holmgren,  
RAM Construction  
Services Branch  
Manager



**Project Size:** 12,000 SF  
**Application:** Restoration  
Waterproofing  
**General Contractor:** Mortenson  
**Applicator:** RAM Construction  
Services  
**System:** HydroGel



## Complex Restoration Waterproofing of WWII Production Facility Turned Brewery

Restoration waterproofing presents unique challenges for applicators, designers and building owners that are distinct from new construction waterproofing. As-built drawings may be unavailable or original project drawings incomplete. The foundation waterproofing may be unknown until excavation. Older waterproofing materials may contain asbestos or coal tar pitch. These materials are now known to be harmful and may require expensive abatement.

Most projects are bid before excavation. Typically, it is not possible to truly understand the scope of work necessary until excavation and preparation of the foundation are completed, which can be the most time-consuming and costly portion of restoration waterproofing.

This means that restoration applicators must bid on the project with incomplete information, mostly concerning existing waterproofing and substrate conditions. Uncertainty always increases costs.

Designers must consider material tie-ins and system compatibility for transitions to at-grade flashing or existing waterproofing that may remain in place. Building owners must consider potential schedule or budget overruns due to unforeseen circumstances related to exposure of the foundation.

### The Project

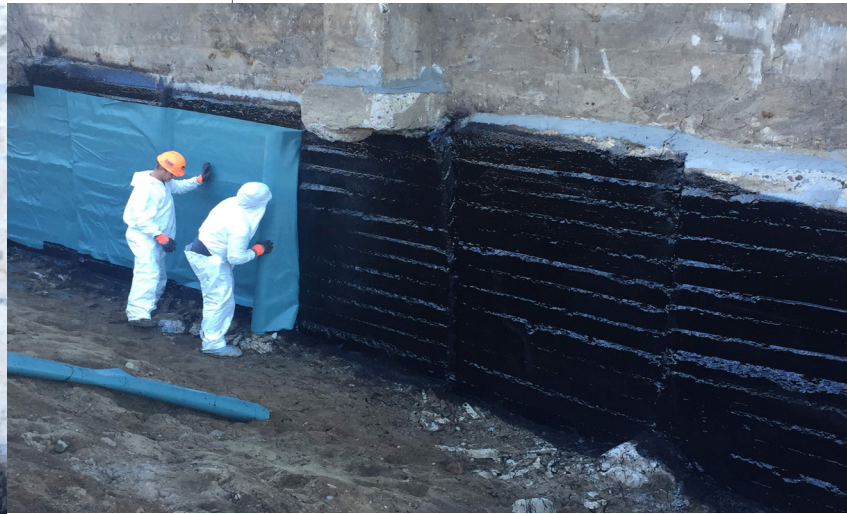
Originally constructed in 1929 to house the boiler room for a manufacturer of firefighting water pumps, the Northern Stacks structure was repurposed during World War II to produce ship guns for the U.S. Navy.

The production facility was awarded six stars for Excellence in Production, one of only eight production facilities nationwide throughout World War II that received such accolades and

Spray application of HydroGel to excavated foundation wall.



Installation of the GFG16 HDPE protection sheet over HydroGel.



only one of two left standing today. Fulfilling a new purpose, this structure was restored and is now home to the Forgotten Star Brewing Company.

### The Problem and the Solution

To repurpose this structure, the infilled inside floor was excavated in sections to recreate below-grade space. The original foundation was poured in place against lagging without waterproofing. Due to the presence of the Mississippi river nearby and water table conditions above the footing level, it was necessary to apply waterproofing to the structural walls to properly protect the interior below-grade space from water intrusion.

Excavation of the walls was completed down to the face of the footings and in some areas, below exterior piers that were originally installed for additional wall reinforcement. While the condition of the concrete was structurally sound, there were large concrete fins that occurred during the original concrete pour through loose fitting lagging boards, deep rock pockets and a lot of irregularity to the concrete surface. This substrate would have proven challenging for any type of sheet-applied waterproofing membrane.

Seasoned EPRO Approved Applicator, RAM Construction Services, recommended our HydroGel waterproofing system to the GC, Mortenson, because of HydroGel's many unique restoration waterproofing benefits.

"We really like the HydroGel system for restoration applications. It has a lot of qualities that make it a good fit for restoration, including its spray application and strong adhesion to most substrates. Using HydroGel minimizes the amount of surface prep typically required for these types of applications. Minimizing surface prep helps us save time and money for the building owner," explains Jeff Holmgren, RAM Construction Services Branch Manager.

Combining HydroGel with a highly durable and puncture-resistant HDPE protection sheet completes this high-performance waterproofing system. With no cure time, subsequent topping materials can be applied and backfill can begin immediately. This makes HydroGel not only an effective option for restoration waterproofing but also a very productive solution.

"Utilizing the HydroGel system for restoration waterproofing on the Northern Stacks project allowed the general contractor to maintain their schedule while providing the owner with a properly protected below-grade interior space." EPRO onsite technical representative, Dan Hammill, remarks, "RAM Construction Services completed all of the waterproofing elements of the HydroGel system well within the given project timeframe. It was a quality install over a challenging near hundred-year-old concrete substrate."

Effectively eliminating the threat of water infiltration, our HydroGel restoration waterproofing solution helped ensure that the building owner's operations were protected. Proving the importance of restoration waterproofing and selection of appropriate waterproofing materials like HydroGel, they have successfully added new value to an important piece of our national heritage.