

TECH TIPS

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DON'T COAT OVER THE PROBLEM: WHY GROUTING FIRST PREPARES FOR LONG-TERM REHABILITATION

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When rehabilitating a below-grade structure such as a manhole, applying a protective coating or liner helps restore the interior surface and extend its service life. But before coating or lining begins, it is critical to address one of the most common challenges facing underground structures: **water infiltration**.



Coatings and liners are designed to protect the substrate, but not necessarily to stop active groundwater from entering through cracks, joints, penetrations, or other defects.

So, what do you do?

For long-term performance, injection grouting should be considered an important step in the rehabilitation process when active infiltration is present. Injection grouting is a trenchless technology engineered to eliminate infiltration and stabilize soils in below-grade

assets. It addresses water pathways and soil substrate deficiencies before the protective coating is applied.

Uncontrolled groundwater infiltration can:

- Prevent proper substrate preparation
- Interfere with coating adhesion
- Create hydrostatic pressure
- Cause blistering or delamination
- Continue transporting fines/soil behind the structure
- Make it difficult to achieve a uniform coating application

Therefore, grouting first, then coating or lining second, is a complimentary, holistic approach to a complete rehabilitation strategy.



Inspect Before You Repair

Before selecting a rehabilitation approach, thoroughly inspect the structure to identify the source and severity of infiltration. Look for active leaks at joints, cracks, pipe penetrations, or through other defects. Understanding where water is coming from and how it is moving is essential to selecting the appropriate grouting method and material.

Stop Water at the Source

Attempting to coat or line a structure while active infiltration is still occurring can create challenges for adhesion or final cure. Water moving through the substrate can introduce hydrostatic pressure and interfere with the coating system, potentially contributing to blistering, delamination, or premature failure.

Injection grouting addresses infiltration before the coating is installed. Depending on structure conditions and the defect being rehabbed, grouting can be achieved using a variety of approaches such as in a crack or joint injection, or curtain grouting to seal pathways behind the structure.

Don't Overlook What's Behind the Structure

Infiltration does more than introduce unwanted groundwater to the system. Over time, it transports soil fines through defects, potentially creating voids behind the structure and capacity issues in the system. Where appropriate, injection grouting can be used to fill voids and stabilize surrounding soils, helping address conditions that may otherwise remain hidden after rehabilitation. Gradually, these weak soils and voids may create surface level issues or, even worse, costly emergency repairs.

Prepare the Substrate for Success

Once grouting is complete and infiltration has been verified as adequately controlled, the structure can be cleaned and prepared for the coating or lining system. Surface preparation is critical to the long-term performance of the rehabilitation system and should always follow the coating or lining manufacturer's requirements and applicable industry standards. Just as important, the structure should be free of active infiltration and excessive moisture before the coating or lining system is applied. The goal is to provide the coating or liner with a clean, stable, and infiltration-free substrate so it can perform as designed.



Thinking Beyond the Surface

Injection grouting and coating systems serve complementary technologies: grouting first controls infiltration and addresses soil conditions, while coatings and liners protect and rehabilitate the interior substrate. Both are excellent technologies that work in tandem.

By addressing infiltration before coating or lining, engineers, contractors and asset owners can establish a more stable structure and help set the rehabilitation of the structure or system up for long-term, effective performance.

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