

Alchatek

CASE STUDY
LEAK SEAL

PEDESTRIAN TUNNEL HOUSTON

# Minimally Invasive *Tunnel Leak Repair*

*A critical downtown Houston pedestrian tunnel had persistent water infiltration affecting the ceiling, walls, and floor throughout the structure.*

COST SAVINGS COMPARED TO TRADITIONAL METHODS

95%

PRODUCT

Spetec GT350



## 01 What made this job *difficult.*

PEDESTRIAN TUNNEL
HOUSTON

A critical downtown Houston pedestrian tunnel had persistent water infiltration affecting the ceiling, walls, and floor throughout the structure. The tunnel serves as vital underground infrastructure in Houston's urban core, where any significant disruption would impact pedestrian traffic and building access. Initial observations revealed widespread moisture intrusion, but the full extent of the problem remained unclear until interior finishes could be removed for proper assessment. The facility required a rapid, effective solution that would minimize downtime and restore the tunnel's watertight integrity.

KEY CONDITION

*Once sheetrock was removed from affected areas, engineers discovered extensive water infiltration through multiple areas in the concrete structure. Moisture intrusion was occurring through joints, cracks, and penetrations, creating a complex leak pattern that compromised the tunnel's structural integrity.*

THE CONSTRAINT

### Tunnel stayed open

PEDESTRIAN TRAFFIC KEPT MOVING

The tunnel carries pedestrian traffic and building access in Houston's urban core. A closure would have cost an estimated $10,000 to $25,000 per day, so every repair step had to be completed with the tunnel in service.

# 02 What was specified, *and how it went in.*

SPETEC GT350

Alchatek recommended using Spetec GT350, a hydrophilic polyurethane grout specifically designed for active leak sealing in underground structures. This single-component material was selected for its ability to react with water to form an expanding, flexible foam that creates a permanent, waterproof barrier. The injection approach would allow precise targeting of leak sources while maintaining tunnel accessibility throughout the repair process. The polyurethane's expansion properties would ensure complete void filling and crack sealing, even in areas with irregular geometries or active water flow.

THE MATERIAL

## Spetec GT350

HYDROPHILIC POLYURETHANE GROUT

A single-component hydrophilic polyurethane grout that reacts with water to form an expanding, flexible foam, creating a permanent, waterproof barrier.

## THE METHOD

01
### Map
Mapped all visible leak points and moisture intrusion areas throughout the tunnel structure.

02
### Drill
Drilled strategic injection ports at locations determined to intercept areas of water infiltration.

03
### Inject
Injected polyurethane grout through ports using positive displacement pumps, monitoring for material refusal and leak cessation.

04
### Verify
Verified complete sealing through visual inspection and moisture monitoring following cure completion.

## WHERE THE WATER CAME IN

01
### Joints
Moisture intrusion through joints in the concrete structure.

02
### Cracks
Moisture intrusion through cracks in the concrete structure.

03
### Penetrations
Moisture intrusion through penetrations in the concrete structure.

## AT A GLANCE

**95 %**
COST SAVINGS
Compared to traditional methods.

**$10–25K /day**
LOSSES AVOIDED
Estimated daily losses prevented by avoiding closure.

**Open**
DURING REPAIR
The tunnel remained operational throughout the repair process.

**Dry**
AFTER HEAVY RAIN
The tunnel remained dry during subsequent heavy rain events.

# 03 What the result was, *and what confirmed it.*

AVOIDED ECONOMIC LOSSES

The polyurethane injection process successfully eliminated water infiltration throughout the tunnel structure, restoring its watertight integrity without requiring facility closure or major structural modifications. Post-treatment inspections confirmed the complete cessation of leaks, with the tunnel remaining dry even during subsequent heavy rain events. The minimally invasive approach allowed the tunnel to remain operational throughout the repair process, avoiding costly service interruptions.

AVOIDED ECONOMIC LOSSES

## $10,000 to $25,000/day

*Avoiding tunnel closure prevented an estimated $10,000 to $25,000 in daily economic losses due to disrupted pedestrian traffic and building access.*

> *Post-treatment inspections confirmed the complete cessation of leaks, with the tunnel remaining dry even during subsequent heavy rain events.*

POST-TREATMENT INSPECTION

**BEFORE**

Persistent water infiltration affecting the ceiling, walls, and floor throughout the structure.

**AFTER**

Watertight integrity restored without facility closure or major structural modifications.

START THE CONVERSATION

## Send us the job.
## *We will send back an approach.*

Send us the soil report or the failure photos and Technical Services will return a written approach within two business days.

TECH SUPPORT

404 · 618 · 0438

WWW.ALCHATEK.COM

Alchatek

**Alchatek** manufactures polyurethane resins, chemical grouts, and injection equipment for infrastructure repair: leak sealing, soil stabilization, concrete lifting, and seawall repair. Headquarters in Tucker, Georgia, with a bonded warehouse in Reno, Nevada.

Information in this document is believed accurate at the date of publication. Product performance depends on site conditions and application; consult the current Technical Data Sheet, which is the controlling document.