



PPM PROGRESSIVE
PIPELINE
MANAGEMENT
THE INFRASTRUCTURE RENEWAL SPECIALISTS

MARKET SEGMENT
ROOF DRAIN REMEDIATION

LOCATION
ATLANTIC CITY, NJ

DATE
MAY-JUNE 2022

CLIENT
RESIDENTIAL HIGHRISE BUILDING OWNER

PROJECT PROFILE

UV CURED-IN-PLACE-PIPE (CIPP)

637 FT / 4" ROOF DRAINS

BACKGROUND & SITUATION

A fifteen story building with 150 units of residential condos and apartments in Atlantic City, New Jersey, had multiple leaks throughout the building's roof drain system. The building is over sixty years old with four cast iron roof drains four inches in diameter. During rain events, the roof drains would leak throughout the building walls and ceiling, causing excessive water damage.

Due to the broad range of experience and track record with CURED-IN-PLACE-PIPE (CIPP) and pipeline remediation, PPM was asked to assess the damages and provide recommendations. The initial assessment indicated significant structural degradation.

PPM recommended CIPP as a long-term solution to rehabilitate the 4" roof drain pipes and avoid future corrosion or destruction. The process involves adding a structural liner to the existing host pipe that bonds to the host pipe through a curing process. Implementing CIPP enabled the building owner to avoid exorbitant costs and significant

disruption to residents if the building owner decided to rip out and replace the pipe drains and walls. PPM selected ultraviolet (UV) curing as it allows control of the curing process.

SCOPE

The building has four total roof drains that extend vertically from the roof through the basement. Each roof drain is approximately 120' long with a total of 637 feet. The CCTV camera inspections revealed further degradation; the drain pipes were extremely brittle with multiple cracks and significant amounts of corrosion. There were bends, elbows and constricted spaces to negotiate. One section of pipe had a four inch gap where the pipe had corroded so significantly that an entire section of pipe was missing.

The liner was measured and cut to the exact specifications of each pipe. After the pre-cut liner was soaked in resin, it was loaded into a pressure drum, installed and inverted. A chain of ultraviolet lights on a cable was inserted section by section into each pipe to cure.



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CHALLENGES

Working with the small diameter of the drain pipes in the multi-story building added complexity and access issues. Addressing the missing section of pipe involved climbing into a hatch in the ceiling of the parking garage so a PPM team member could guide the CIPP across the gap. Although it did not have pipe to adhere to, once cured, the lining bridged the missing section and is as structurally sound as the sections that have a host pipe. Experience, planning and coordination were invaluable to the project's success.

With CIPP, managing the time and stages of curing is always a challenge. There is always a risk that resin can harden and cure too quickly with time and temperature changes. With UV curing, the resin cures and adheres to the host pipe only when it is exposed to UV light.

OUTCOMES & RESULTS

After the liner was inverted and cured, the inspections confirmed that the liner bonded to the host drain pipes forming a structurally sound pipe with a life of 100 years or more. A final CCTV inspection of the internal structure of the four roof drains confirmed the liner was in place and clear of obstructions.

The PPM team performed the entire project of lining and remediating the roof drains in the fifteen story building, without displacing the residents. The building owners avoided the high costs and disruption of the alternative, which would have required ripping out walls to replace the drains.