



NU FLOW N. AMERICA™
RELINE REPAIR RENEW
Where life interacts with infrastructure.

The Technologies

Nu Flow manufactures and installs innovative green technologies to rehabilitate the inner infrastructure of deteriorated or failing potable, mechanical, gas, petroleum and drain piping systems using in-place epoxy coatings and structural liners. Several patented lining options provide cost-effective solutions for use in virtually any type of pipe, in every market sector, installable in many types of environments. Nu Flow is committed to the concept of inside infrastructure clean water solutions and is the world leader in small diameter pipe lining solutions.

How Pipe Lining Technology Works

Pipe lining or restoration employs non-invasive, in-situ technologies using epoxy coatings, structural liners and innovative piping products to renew leaking or deteriorated host pipe systems that carry water, waste, gas, petroleum products and electrical conduit. Our lining technology creates a pipe inside the host pipe by either coating the interior walls of pipes and mechanical systems or installing a new structural pipe to stop leaks, renew old systems and bridge gaps in void or missing pipe sections. The restoration is accomplished through either single- or double-entry access points with minimal disruption to scheduling, operation or surfaces of structures, landscapes and hardscapes.



Nu Flow lined all of the hot and cold potable water lines throughout this 190-unit complex.

Patents, Products and Equipment

Nu Flow's epoxy coating meets or exceeds all industry standards for safety and performance. The life expectancy of the epoxy is estimated to be 100 years and so far, has withstood the test of time and every corrosive environment for more than 40 years in Japan and around 30 years in the United States. Nu Flow is master licensee of the U.S. Navy's patented epoxy and application process and maintains rights to 21 industry-partner patents.

Nu Flow structural lining products meet or exceed all industry ratings and standards for performance. Solutions consist of Nu Flow's patented CIPP drain lining technology and inversion lining technology.

Technological Advantages over Traditional Repair Methods

Historically, blocked, broken or leaking pipe systems required the destruction of floors, walls, landscape or hardscape to access pipes before pipes could be repaired or replaced. Lead leaching into drinking water and pollution of ground water from deteriorating, leaking pipes are ongoing health and environmental concerns until pipes are renewed or replaced.

Before renewal through lining, replacing a pipe or an entire plumbing system was the only option - an expensive, destructive, time-consuming and disruptive undertaking that usually required occupant displacement for weeks or months until repairs could be completed. Even worse, reconstruction can easily cost an additional forty to sixty percent beyond direct pipe repair cost.



No Digging or Demolition

Inside Infrastructure

Nu Flow pipe rehabilitation will renew piping systems for any type of building, including commercial, municipal, federal, industrial and residential properties. Below are the various plumbing systems that we can line.

Hot and Cold Potable Water Systems

This includes all of the drinking water for a building, which consists of pipes that bring clean water to sinks, showers, toilets, drinking fountains, pools and decorative fountains. The chemicals used to treat our drinking water aggressively attack copper pipes, causing pinhole leaks. The minerals inside the water collect along galvanized pipe and form mineral deposits that limit water flow.

Potable Water Risers

These pressurized vertical risers supply domestic potable water to multi-story buildings. The copper pipes can experience pinhole leaks and the galvanized iron pipes can experience mineral deposits and low flow.

Compressed Air

This pressurized system transports air for industrial facilities and laboratories. The black iron or galvanized iron pipes can have inaccessible pipe fittings that have corroded and therefore leak the air.

HVAC/Hydronic and Chiller Systems

These risers use water to heat and cool a structure. Often black iron pipes, minerals in the water create mineral deposits that obstruct water flow inside the pipes, which limits flow and results in inefficient heating and cooling.

Fire Suppression Systems

Municipal water is distributed throughout a pressurized pipe system to serve as a means to extinguish fires. This standing water can sit for extended periods of time and cause corrosion to the pipe, which then can plug the sprinkler heads and cause the system to fail.

Vertical Sanitary Stacks

These vertical pipes go through multi-story buildings and receive all sanitary waste from the sanitary branch lines. These pipes commonly experience limited flow, obstruction and back-ups from the corrosiveness of the waste.

Horizontal Sewer Branches and Mains

These horizontal pipe lines carry sanitary waste to the vertical stacks, which then lead to the sanitary mains, which brings the waste out of the building. These pipes often experience cracks, holes and missing bottoms because of the waste's corrosiveness and weight.

Roof Drain Systems

When it rains, a building's roof collects the rain water and sends the water down stacks, through horizontal branches and out of a main drain that exits the building. Usually cast iron pipes, these pipes are often dry, so they become brittle and crack, which causes leaks.

Processed Piping/Industrial Piping

These pipes found in an industrial or manufacturing facility transport the products through the manufacturing process. These pipes can have fitting and joint leaks, so the leaks need to be correctly sealed.

Conduit Piping

These aluminum or pvc pipes carry electrical wires underground. Groundwater infiltration at the joints can occur and cause damage.

Chemical Piping

Found in laboratories, chemical pipes often carry highly corrosive liquids, which can eat holes in the pipes.



Vertical Sanitary Stacks



HVAC/Hydronic and Chiller Systems



Potable Water Systems



Fire Suppression Systems

Solutions for Aging Infrastructure

Nu Flow specializes in small-diameter pipe restoration, a market that encompasses both public and private systems. Smaller diameter piping ranges in size from 1/2" to about 10", with larger custom diameters available as requested.

The market for pipe repair and rehabilitation is large and growing. Based on U.S. EPA analyses, the public and municipal small diameter distribution systems market is estimated to be more than \$3.9 billion per annum. The market for infrastructure repairs to private plumbing systems is estimated to be as much as "5 to 10 times larger [than the public market]" – an additional market opportunity of as much as \$39 billion per annum.

Statutory enactments in the 1970s and 1980s mandated the adding of disinfectant chemicals to make our drinking water safer, but which those chemicals also erode and cause aggressive corrosion in metal piping systems. Metal piping systems with a design life of 30 years have rapidly deteriorated since the 1970s. In fact, newly installed piping systems can fail in as little as two to five years based not only on corrosive chemicals, but factors such as outdated and inferior industry practices, pH levels, hard water and mineral content and frequent hot water temperatures. Based on 2004 infrastructure conditions, experts estimated that private piping systems (pipe that runs from the street curb into and throughout building structures) would cost as much as \$77 billion to repair over the next twenty years. Experts in some studies estimate indirect repair costs for reconstruction of damaged access points and facades will likely increase direct repair estimates by as much as 40% to 60%.



Nu Flow lined a leaking 12"-wide water supply line for a dolphin holding tank that runs 9 feet beneath a concrete sidewalk and landscape at a famous theme park.

The Repipe Alternative

In the private market sector, the small diameter pipe lining market has been almost exclusively serviced by plumbing and mechanical engineering contractors repiping old pipe systems. However, since early 2000, pipe lining companies have emerged with a more practical and cost-effective alternative to traditional replacement. 'Rehabilitation' versus 'replacement' is a recurrent theme in reports and studies conducted by private and governmental authorities tasked with finding solutions to infrastructure failure.

Green Technology

Nu Flow's pipe restoration technology is an eco-friendly solution that creates no waste for landfills or recycling and does not generate carbon emissions during manufacturing. Traditional pipe replacement creates tremendous amounts of waste and requires equal amounts of new building materials. By retrofitting existing pipes with a structural liner or epoxy coating, Nu Flow saves the existing infrastructure and greatly extends its useful life without digging and destruction of existing landscapes and hardscapes or interior walls and ceilings.

Nu Flow's solutions also have environmental and health benefits. In sanitary systems, lining stops leaks and breaks that otherwise cause pollution to watersheds and contamination of groundwater. Lining also prevents inflows and infiltration into sewer systems, which reduces the load on wastewater treatment facilities. In potable water systems, Nu Flow's epoxy coating prevents heavy metals and lead from leaching into drinking water. No matter where the system exists, Nu Flow's solutions protect property and environment from the destructive impact of a leak.

Nu Flow's pipe rehabilitation eliminates corrosion and restores pipes to more efficient operation. By eliminating leaks, Nu Flow saves water in potable systems and other pressurized mechanical systems that otherwise need a steady supply of make-up water. A less obvious benefit is that by eliminating leaks and removing corrosion, this solution can reduce demand on pumps and thus save electricity. Even in compressed air systems, where significant amounts of pressure can be lost through a small hole in the pipe, a rehabilitated pipe leads to reduced demand on the air compressors, which also saves electricity.

The Industry's Global Leader



Our Mission

Nu Flow is a progressive pipe lining manufacturing and installing company that's goal is to bring our in-situ pipe rehabilitation technology inside the aging high-rises, skyscrapers, industrial facilities, manufacturing plants, water treatment facilities and other types of large properties and buildings. While the government's focus is primarily set on fixing the large diameter pipes that make up each city's supply and return lines, we attend to building owners and property managers, who also need an effective solution to aging pipe problems.

We are not your basic plumbing business, nor are we the typical infrastructure company. Our high-tech, patented solutions are installed by skilled professional technicians and we do not create new infrastructure - we instead renew the present plumbing system to stop and prevent failures. When our customers learn about our advantages compared to all the drawbacks of a traditional repipe, there is no questioning why Nu Flow is the better choice.

Our Market

Property managers, facility managers, building owners, housing authority boards and contracting firms can take advantage of Nu Flow's innovative blown-in and no-dig technologies for the residential, commercial, industrial, municipal or federal properties they oversee. The bigger and busier the building, the more the customer benefits from our solutions.

Applications

In-Place Restoration

In-place restoration is a long-term solution for leaks, breaks, blockages, root intrusion and sewer backups; prevents water damage and mold due to leaks; maintains water flow and in potable water lines; and is a protective barrier to lead leaching into drinking water from metal piping systems.

Restoration of existing host systems is typically half the cost of traditional repiping, since there is little or no reconstruction cost, generates no waste for landfills or recycling and does not emit carbon emissions during manufacturing.

The average lining process takes about three days, compared with one to two months for a repipe within the same job scope. There is no occupant displacement and minimal disruption, if any, to water service.

Applications in the Marketplace

Restoration applications in today's marketplace include almost every type of pipe system that carries water, gas, electricity, oil or chemicals. Standard work is regularly performed in residential and commercial multi-story structures, industrial and institutional facilities, electrical and gas facilities, the hospitality market, hospitals and clinics, oil rigs, aircraft carriers and other maritime vessels, as well as historical buildings, churches and public landmarks where preservation of original, irreplaceable facades is of primary concern.

Examples of Projects Rehabilitated by Nu Flow

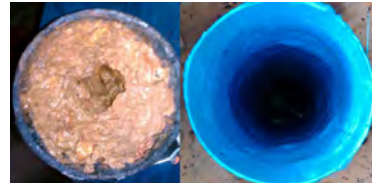


Plumbing infrastructure and distribution systems in North America are on average 100 to 200 years old and consist essentially of three market segments: municipal (public service infrastructure), large diameter piping (ten inches and larger) and small diameter piping (less than ten inches). In 2005 and 2009, the American Society of Civil Engineers gave the United States' wastewater and drinking water systems D-minus ratings*. The U.S. EPA estimates public drinking water systems will require \$334.8 billion** and wastewater systems will require \$300 billion by 2028 to repair. The EPA also indicates in several studies that pipe lining is a preferred option over traditional replacement methods.

*American Society of Civil Engineers. Drinking Water and Wastewater Report Cards. 2009
 **US Environmental Protection Agency. Drinking Water Infrastructure Needs Survey and Assessment. 2007



Corroded potable riser and potable riser with Nu Flow's epoxy coating



Corroded fountain drain pipe and fountain drain pipe with Nu Flow's structural liner

Nu Flow's In-Situ Pipe Lining



Less tools and equipment to get the job done



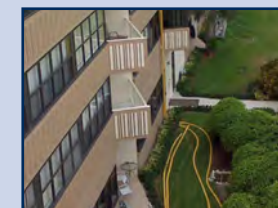
Fully utilize existing access points, so we do not have to cause destruction to access pipes



Pipe system is still functional during our work or we provide temporary potable water



Apply epoxy to inside of pipe lines, protecting the pipes from future problems and preventing chemicals from leaching into drinking water



Save the customer time, hassle, disturbance and around half the cost



Reuse the existing pipes, so there is no waste added to the already overcrowded landfills

Traditional Repipe Excavation



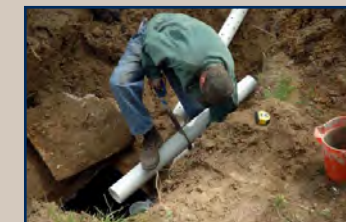
Lots of heavy and loud equipment (jackhammers, excavators, etc.)



Locate failing pipe lines and dig them up



Pipe system is not functional and surrounding area is excavated



Replace pipe with new pipe that is bound to experience the same inevitable problems



Customer must still have workers clean up construction area, repave floors, fix walls and ceilings



The digging up of concrete, dirt and pipes creates waste for the landfills

Why Is "In-Place" Pipe Lining Better Than Replacing the Pipes?

Nu Flow's patented technologies restore corroded or eroded piping systems without the costly expense and disruption from a traditional pipe replacement. During a typical repipe, the failed pipes are removed, which causes destruction and inconvenience to the property. Replacing the pipe does not extinguish the root of the problem, so the new pipe system will inevitably suffer the same fate. That is why Nu Flow's blown-in and no-dig pipe liners are the preferred, long-term solutions.



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