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Renovating your old, corroded water pipes – from the inside

We are all well acquainted with the symptoms: Anemic water flow at the shower, rusty water from the sink faucet, a toilet tank that takes five minutes to fill. The cause is constrictions in galvanized steel pipes, generally older than 30 years.

Constrictions, mineral deposits, microbiologically influenced corrosion, arteriosclerosis of the pipes, or whatever you care to call it – has been the bane of all who use indoor plumbing.

The eternal question of building owners everywhere: Can we de-bur it, ream it out like a battery terminal, use drain cleaner on it? Anything?

Until recently the answer was a resounding no, nothing. Re-plumb it or live with it, has been the answer.

Meanwhile, at least three companies have been working with technologies to abrasively clean (sandblast) large-diameter pipes from the inside out and coat the interiors with epoxy.

This technology was developed in Japan and used on large-scale projects, such as ships, industrial plants, schools and hotels.

With smaller equipment and refined techniques, ACE DuraFlo Systems had recently jumped into the residential market, a first, and a very welcome alternative to re-piping. The company has several locations across the country, including Seattle.

ACE DuraFlo® is the operation to know about. With a proprietary epoxy that dries in 24 hours rather than the traditional 7 days, this company can get in and out of a building with a lot less disruption and downtime than a traditional re-pipe.

Something you'll hear about the minute you investigate this technology is "aggressive water" that takes its toll on copper plumbing. Arizona is especially well-known for corroded copper plumbing, this ironically the reason why so many homes were built there in the late 1980's with polybutylene plastic plumbing. This is the same material that later became part of the largest building-products lawsuit settlement in U.S. history. Copper tends to corrode and develop pinholes, but unlike galvanized steel, it generally does not become constricted.

Copper usage was more common elsewhere, but was not widely used in our area until the early 1970's. Here and

elsewhere, many larger local buildings (such as hotels) are suffering from pinholes, notably on re-circulating hot-water systems. Several of these have been fixed with epoxy systems.

The pinhole phenomenon and "aggressive water" is still the subject of a lot of debate, yet very little consensus as to the real cause(s).

Some factors that contribute to the problem: Pipe material quality and grade, chlorine, soil types, instillation methods, temperature, pH levels, water pressure/velocity/usage, dissimilar metals connected to the system, electrical grounding methods, bends in the system, water oxygen levels and lack of protective organic materials entrained in the water.

Pinholes are usually accompanied by green copper oxidation markings and small whitish water stains. Small leaks in a system can go undetected and possibly create mold behind walls.

Yet we traditionally have had no way to detect, much less repair, these types of problems without digging into walls and removing drywall, wallpaper and other finishes.

Now the first step in blasting the interior of the pipes is to remove valves at each fixture. (A licensed plumber, as well as technicians, are part of the ACE DuraFlo® crews.)

Shower and isolation valves are bypassed or replaced. Compressed air is used to thoroughly dry the system. Small sections off each riser are isolated from the system, and the aluminum oxide abrasive (of differing grits) is let into the system, and drawn out at the pre-determined termination point until audible and visual clues show the pipe is clean.

The epoxy is then added and spread, again via air pressure. After drying 24 hours, the system is pressure tested per the plumbing inspector, filled with water, and flushed for an hour.

Valves are replaced, and the job is done. The epoxy (which meets National Sanitation Foundation Standard 61) will not corrode even as new plumbing will, and is estimated to last 75 years.

Cleaning the interior of a pipe and coating it is always quicker, always less mess, and generally less expensive than replacement.

ACE DuraFlo® can be reached at 888-775-0220 or www.FixMyPipes.com