

Pipes are *Not* a Lifetime Component

A “lifetime building component” may be a correct reserve study term but is actually a misnomer, in that nothing lasts forever. This is particularly true of piping systems. To generalize, galvanized steel pipes have a life expectancy of 30-50 years, copper 40-75 years, and cast iron 50 to 75 years but it is not unusual to see pipes fail prematurely. Because most Reserve Studies have a horizon of only 30 years, owners rarely plan for pipe replacement. Of course, the best time to perform pipe replacement is just before they fail, avoiding water damage to buildings and personal property, resultant mold, and loss of use. But how do you determine the magic moment just prior to pipe failure? When do you stop responding to service-calls for piecemeal repairs? How do you address and plan for major repairs?

Causations for Pipe Failure. Many factors affect the life expectancy of piping:

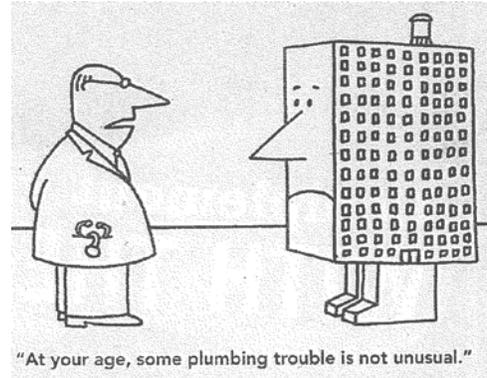
- **Lack of maintenance.** The lack of routine hydro jetting of main sewer lines contributes to buildup and failure.
- **Improper installation.** Contact with concrete or dissimilar metals, lack of pipe support, and poor workmanship all stress piping. Undersized piping clogs, corrodes & fails more quickly.
- **Location.** Drainage piping on ground floors suffers from the combined gravitational effects of cumulative use and corrosion.
- **Improper use.** Garbage disposals introduce grease and food residues which adhere to the interior walls of pipes causing stoppages, backups and premature corrosion.
- **Corrosion.** All metals corrode in contact with water, air and chemicals. Internal corrosion can result from contact with caustic cleaning chemicals, and external corrosion can result from contact with acidic or alkaline soils, or from proximity to the ocean and salt air.
- **Patterns of occupancy.** In occupied homes, pipes maintain a consistent moist environment, whereas in homes which are used sporadically, pipes can dry out, increasing cracking. Piping in high-population buildings typically sees an accelerated accumulation of corrosion and buildup.
- **High rise considerations.** A mid- or high-rise building adds another level of complexity with sophisticated mechanical systems which utilize pumps to distribute flow throughout the buildings through large diameter steel piping. Each part of the system is prone to failure and has the potential for catastrophic water damage.
- **Manufacturing defects.** Residual stress from improper manufacturing increases the chance of cracking and pinhole leaks later. These pipes are potential future time bombs.

With the cumulative effects of all of these issues, pipe systems face a losing battle to remain leak-free over time. We frequently see a combination of many factors plaguing aging multi-family residential buildings.

Telltale Maintenance Patterns. A good way to determine whether the pipes in your building are nearing their life expectancy is to watch for emerging maintenance patterns. There will be

an increase in pinhole leaks, clogs and backups, homeowner complaints, and service calls. If you are managing mold damage resulting from broken or leaking piping, we suggest you pause and consider the larger picture. It may be time to evaluate the system as a whole.

Do you need pipe replacement? To answer this question, a construction professional needs to evaluate all causes for pipe failure in your building. Be mindful that there may be more than one reason: evaluation methods include videoing and hydro jetting sewer and storm drain lines, physical inspection, destructive testing, pipe sampling and analysis and prototype repairs to typical units.



Pipe replacement costs vary tremendously due to the accessibility of piping. Typically the costs to expose the piping and restore finishes are greater than the pipe replacement itself. There are many options, and combinations of options, that should be considered in a pipe replacement project that can be made only after a thorough investigation. The repair strategy should be driven by causation to ascertain the best and most cost effective approach.

Alternative technologies. Pipe coating and lining are attractive options because they do not entail the expensive destruction and renovation within units, processes that all need to be carefully considered for their appropriateness. Often, an amalgamation of multiple techniques is the best approach.

Hazardous materials are often encountered in re-piping projects. It is wise, in the planning phase prior to establishing the budget, to incorporate a pre-demolition survey to determine the presence of potential hazardous materials such as asbestos and, if there have already been pipe failures, mold.

Risk Management. Any project that includes access into homes carries risk. Be aware of the legal structure of your Association regarding common area vs. homeowner responsibilities. In any project of substantial size, careful management of contract negotiations can protect your liability and control costs. The myriad dynamics associated with re-piping create a tremendous challenge in controlling costs. Professional management with an experienced firm will explore and strategize alternate approaches. This early planning will certainly be a worthwhile investment that will ensure a more cost-effective and successful project.

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