

CODE ALERT

Replacing Piping in an Existing Buildings

by Art Linden, P.E.



Many building owners and managers will eventually need to address replacement of old pipes in their building. It may come as a surprise that permits are required for building maintenance projects (like pipe replacements), so we thought a discussion about the process would be beneficial. This article is slanted toward replacement of domestic hot and cold water pipes, but the principles can be applied to most other types of piping systems as well.

A single-trade permit is the type that will probably be needed unless a general contractor will be coordinating the work of multiple trades. In that case, the general contractor will obtain a permit, and each trade will use that permit number to pull a permit for their portion of the work. Plans and specifications of the proposed modifications must be submitted to the City to obtain the permit. The applicable *Code* requirement for the pipe replacement project is the code under which the piping was originally installed, unless significant deviations from the original installation are planned.

The permit itself may be the least concern relating to a pipe replacement project. The problem of having to replace all of the domestic water pipe in a large building can seem overwhelming. Most of the existing piping is concealed behind walls and above ceilings, but the amount and sizes of piping and pipe insulation need to be quantified. Can the system be kept operational while the work is being accomplished and can the work be done without disrupting residents or tenants?

Pipe replacement projects usually are easier to accomplish than it may appear. The key to a successful project is to design a new piping system that can be installed without affecting the continued operation of existing system. The best approach is to install a new set of mains and risers with valved connections at each floor while keeping the existing system intact. The new riser mains do not need to be in the same location as the original piping. A convenient and accessible location to install new plumbing risers can usually be found in a mechanical room, janitor closet or similar space in high-rise buildings. The new mains and risers can be installed, pressure tested and insulated before any connections are made to plumbing fixtures (and without disrupting service to any fixtures on the existing system). Branch piping and final connection to fixtures can then be accomplished on a floor-by-floor basis. The old risers can be drained and removed (or abandoned) after the last fixture is disconnected from the old system.

Good planning, communication and cooperation make the construction process reasonably tolerable. Specify and limit times when noise-producing activities (like demolition or core drilling) can be done. Identify and discuss the paths that construction materials and contractors must follow during the day. The contractor will be responsible for daily cleanup, but the owner must work to keep building occupants informed about how construction activities will affect them. The owner's staff may need to move furniture or wall hangings to facilitate the contractor's work.

We have developed and used the process described in this article successfully for pipe replacement projects in high-rise condominiums, office buildings and correctional facilities. Most projects improve water delivery pressure and address problems with the previous design (such as lack of valves to isolate a portion of the system).

Expenditures for infrastructure repairs are painful, but sometimes necessary. A professional engineer can help determine the extent of required repairs and assist with preparation of the permit documents.