

ASK THE TAC

Q When rehabilitating sewers with CIPP, will offset joints continue to move and eventually cause the CIPP to fail?

A Based on decades of experience, owners should not be concerned about future failures of CIPP at offset sewer joints.

Of more concern should be operation and maintenance (O&M) issues caused by any CIPP wrinkles or defects at severely offset joints. If offset joints have caused the cross-sectional area at the offset to be reduced by 40% or more (See ASTM F1216, Para. 7.1.4), the offset joint should be repaired prior to installing CIPP. CIPP tends to “smooth out” small and medium offset joints quite nicely, but as the offset becomes large and approaches 30-40% (or more) area loss, CIPP abnormalities can occur.

Most sewers are several years old when CIPP is installed. Soils in the pipe zone have consolidated, and pipe movement at offset joints has either stopped or future movement will be minimal. Once CIPP is installed, the sewer is further stabilized, and all pipe movement at offset joints should stop. If there is some minor future pipe movement, this would tend to be a very slow process, and the strain capacity and creep properties of the plastic CIPP material should accommodate any minor movement at offset joints.

When groundwater leaks into a sewer (infiltration), more than just the water enters the system. Groundwater brings with it backfill material which causes loss of the pipe bedding and loss of stability. This can lead to offset joints and, in severe cases, pipe failure. Once CIPP is installed, no groundwater or soil should enter the sewer at offset joints. Thus, there is no longer impetus for the sewer to continue to move.

However, if significant soil voids exist in the pipe zone, CIPP will stop infiltration into the sewer, but will do nothing to help with the soil voids. Known soil voids should be filled with a grout material or flowable fill, typically after the CIPP has been installed. If soil voids are not filled, the sewer may remain unstable with unpredictable consequences.

Based on experience and engineering principals, if proper design and installation practices are used, sewer offset joints will not significantly move (continue to become more offset) and cause CIPP to fail.