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ADVANCES IN COMPOSITE PIPE REHABILITATION

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ABSTRACT: Rehabilitation of medium and large diameter gravity pipes using traditional cured-in-place technologies often requires heavy, thick-walled liners, which create challenges for transportation and installation. Insituform CP™ (a fiber-reinforced version of Insituform's industry-proven CIPP technology) was developed as an innovative and reliable solution to these challenges.

Using laminated composite design methodology, similar to that used in the aerospace and sporting goods industries, Insituform engineers incorporate glass and carbon reinforcing fibers into the wall of the cured-in-place pipe. Optimum orientation of the reinforcing fibers achieves higher stiffness and strength than is possible with traditional CIPP materials. The resulting laminated composite pipe provides full structural performance with approximately 40% less wall thickness than conventional CIPP materials, which provides the added advantage of increased flow area in the finished product.

The increased strength and stiffness of Insituform CP are even more advantageous when rehabilitating noncircular host pipes. Insituform CP expands the technical envelope for cured-in-place pipe rehabilitation beyond its traditional application boundary.

This paper discusses the design theory and product features of Insituform CP. It also details industry standards testing and the application envelope for this technology. In addition, case studies of successful applications will be presented.