Abstract

Bolt-A-Blok system is a unitized, post-tensioned, structural system comprised of concrete blocks, tensioned steel bolts, and bars, eliminating the need for traditional mortar. This thesis presents a refined procedure to calculate the flexural capacity of the Blot-A-Blok wall system based on results of contracted tests. The objective is to develop an approach to calculate the change in strain of the bolts, and as a result, the change in stress when failure occurs. Flexural capacities computed using the predicted change in stress are compared with test results and with strength calculations performed by a researcher at Pennsylvania State University. Applications such as use in residential basement walls will be discussed as will possible use in cantilever walls such as those used in construction of “big box” stores.