

Tensile Strength of Headed Anchor Bolts in Tops of Fully Grouted CMU Walls

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Abstract:

An anchor bolt testing program currently is underway at the University of Louisville. Its purpose is to investigate the behavior of anchor bolts embedded in the tops of concrete masonry walls. Both headed and Lshaped anchor bolts eventually will be tested in either tension, in-plane or out-of-plane shear. This paper reports results for the first phase of headed bolts tested in tension.

Three-course-high specimens were constructed using Type S mortar cement and concrete masonry using 6, 8 or 12 in. (152, 203 or 305 mm) units. All specimens were fully grouted. Headed bolts were embedded in the “tops” of these specimens, in order to simulate construction in which bolts are embedded in the tops of masonry walls.

Testing was accomplished by loading each anchor bolt using a hydraulic ram. Bolt displacements were measured using an LVDT, and plots of displacement versus load were obtained. A total of three edge distances were used for the 6 in. (152 mm) and 12 in. (305 mm) walls, and five edge distances were used for the 8 in. (203 mm) walls. At each of these distances, a total of five replicates were tested. A comparison between test results and bolt capacity using MSJC strength provisions is made.

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