

Variability of Reinforced Concrete Masonry Beam Strength in Flexure and Shear

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Abstract:

The world wide trend towards the development of masonry codes based on a limit states design approach requires knowledge about the variability of strength. Once the degree of variability is known, characteristic strength values based on certain fractiles of the histogram of test values can be determined to ensure acceptable levels of safety. The paper reports on a test program undertaken to obtain at least a measure of the variability of reinforced masonry beam strength under key structural actions. The masonry beams consisted of concrete block members and the key structural actions were flexure and shear. The paper presents an outline of the test program and discusses the test results in the light of other published evidence for each of the two structural actions. Results indicate that the variability in flexure or under-reinforced beams is much smaller than the variability associated with shear failure. The paper further suggests possible limit states design approaches for under-reinforced flexural sections and for shear.

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