

Testing Post Tensioned Slabs with Bonded and Unbonded Tendons

Jasmin Osama Abdelhalim, Ezzeldin Yazeed Sayed-Ahmed

The American University in Cairo, Construction Engineering Dept.

New Cairo, Cairo, Egypt.

jasminosama@aucegypt.edu ; eysahmed@aucegypt.edu

Abstract – Post-tensioned slabs are tested in order to investigate the tendon stress at ultimate limit state in case of using bonded and unbonded tendons. The main objective is to compare the values of the mentioned tendon stress to those predicted by ACI 318-19 based on empirical equations for unbonded tendons and based on strain compatibility for bonded ones. The experimental program will be carried on six one-way slabs in four-point flexural loading. Details of the tested slabs and the test set up are presented in this paper. The results of the test carried showed an excellent correlation where almost all of the slabs experimental test results were equal to the theoretical results with a very minor difference around 10 percent.

Keywords: bonded tendons, prestressed concrete, post tensioned, unbonded tendons.