

عنوان مقاله:

THEORETICAL AND EXPERIMENTAL STUDY OF UNBOUNDED POST-TENSIONED CONTINUOUS SLAB DECKS
CONSISTING OF HIGH STRENGTH SCC

محل انتشار:

سومین کنفرانس بین المللی بتن و توسعه (سال: 1388)

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خلاصه مقاله:

Self-Consolidating Concrete, SCC is the new generation type of concrete which is not needed to be compacted by vibrator and it will be compacted by its own weight. Since SCC is a new innovation, therefore, understanding the implementation of this type of concrete on the ultimate unbounded tendon stress of post-tensioned self-consolidating concrete of bridge slabs decks (PSCCSD) is critical. For this purpose, the theoretical and experimental investigation of continuous tow span PSCCSD consisting of high strength concrete was performed. The slabs deck ($L=7.5\text{m}$, $b=1\text{m}$, $h=0.2\text{m}$) were simulated by this concrete and the percentage of tensile and compressive steel reinforcement are in accordance with the provision of the ACI-08 for prestressed conventional (vibrating) concrete structures. During the test, the strains on concrete, steel strands and ordinary bar and deflections were measured at different locations along each span. Based on the experimental measurements, the values of experimental ultimate unbounded tendon stress for two tested post-tensioned SCC, continuous slabs were measured. The theoretical early and up to date works, as well as the codes recommendations for predictions of internal unbounded tendon stress at ultimate (for conventional concrete used in prestressed structures) are reviewed and their relations are used to compare with the only available experimental results of post-tensioned continuous SCC slabs of this study. It was found that the experimental results are higher than the theoretical as well as the codes prediction values suggestion for . However, among the theoretical values suggested by different selected codes of this study, the ACI-08 values are close to the experimental values of this study.

کلمات کلیدی:

post-tensioned, continuous slab decks, SCC, Ultimate unbounded stress

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