

عنوان مقاله:

Ultimate Tendon Stress in CFRP Strengthened Unbounded HSC Post-Tensioned Continuous I-Beams

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خلاصه مقاله:

The use of unbounded tendons is common in prestressed concrete structures and evaluation of the stress increase in unbonded tendons at ultimate flexural strength of such structure has posed a great challenge over the years. Based on the bending experiment for two-span continuous post-tension beams with unbounded tendons and externally applied CFRP sheets, the monitoring of the stress increment of unbounded tendons is made in the loading process. For these aims, in this paper there are presented results of two continuous un-bonded post-tensioned I-beams were cast with high strength concrete (HSC) and monitored by electrical strain gauges. The beams are made of which are compared with the theory proposed by different codes. The results indicate that the ACI 318-2011 provides better estimates than AASHTO-2010 model whereas this model provides better estimates than BS 8110-97. Comparison of experimental ultimate tendon stress increase of strengthened and non-strengthened beams casted with HSC indicates that increase in tendon stress at an ultimate state in strengthened unbounded post-tensioned beam is lower than non-strengthened unbounded post-tension beam casted with HSC.

کلمات کلیدی:

Strengthened, CFRP sheet, Unbounded tendons, Stress increases, High strength concrete, Continuous beams

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