**عنوان مقاله:**

.A new design equation to determine the ultimate strengths for the post-installed preload bolt shear connectors

**نویسنده:**

Abdolreza Ataei - *Assistant professor, Department of Civil Engineering, University of Isfahan, Isfahan, Iran*

**خلاصه مقاله:**

Steel-concrete composite beams have been extensively used in the construction of buildings for decades due to their higher initial stiffnesses and strengths, higher span to beam depth ratios and lower mid-span deflections when compared to bare steel or concrete beams. Composite action between the steel girder and the concrete slab in steel-concrete composite beams is established by shear connectors transferring the longitudinal shear forces between these two elements. In this study, a comparison of the estimated values obtained from design equations proposed by current standards, including EC۴ and AISC for headed stud shear connectors, and the design recommendations provided in other studies for bolted shear connectors are conducted. According to the calculation result, the accuracy of different design methods is evaluated. A regression analysis of the data produced by the FE analysis has been employed to propose a new design equation to determine the ultimate strengths for the post-installed preload bolt shear connectors. It is concluded that the ultimate shear load capacity values predicted by EC۴ and AISC provisions for composite connections having prefabricated concrete slabs and preload bolted shear connectors found to be relatively less accurate but conservative.

**کلمات کلیدی:**

Bolt shear connectors; design equation; deconstructability; sustainable construction; steel-concrete composite connection; composite beam.

**لینک ثابت مقاله در پایگاه سیویلیکا:**

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