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Spotlight on *Structures*



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Volume 52 (June 2023) of *Structures* is now available to read at:
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For Volume 52, Lei Wang, Associate Editor for *Structures*, has selected an article on finite element analysis that is used to predict shear behaviour of headed studs in steel ultra-high performance concrete slabs.

This article will be available free of charge for six months.

Editor's Featured Article

Finite element analysis on shear behavior of headed studs in steel-UHPC composite slab

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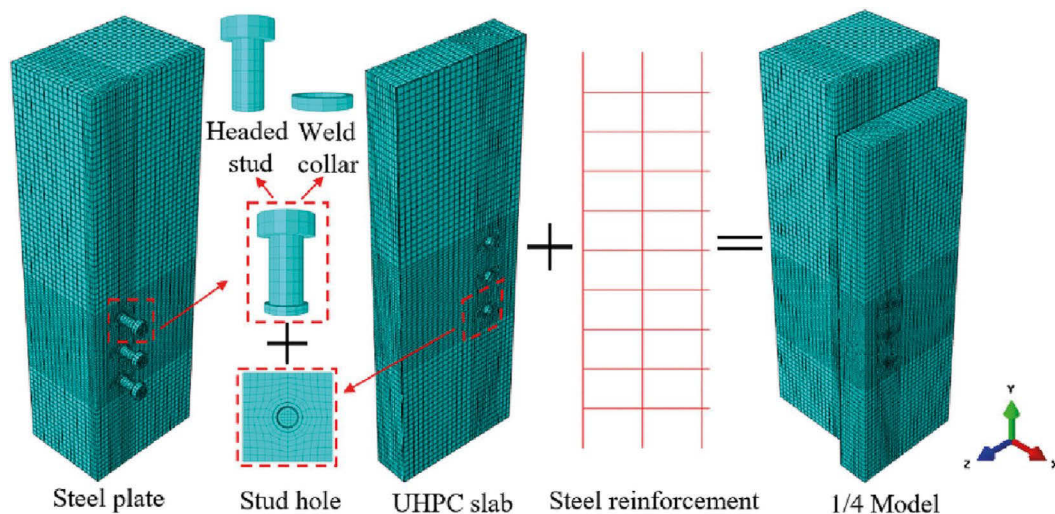
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Headed stud connectors play a key role in steel- ultra-high performance concrete (UHPC) composite slab, which has many applications in long-span bridges. In this paper, a finite element (FE) model is validated by a series of push-out tests to study the shear behaviours of headed stud in steel-UHPC composite slab. After validation, the interaction between stud and UHPC is explored and parametric analysis is performed. The influence of weld collar, diameter and spacing of stud on the failure mode, shear bearing capacity and load-slip relationship of stud connector are discussed. From FE results, the group stud effect should be considered,

as the ratio of stud spacing to diameter is less than 3.5, 5.0 and 6.5 for the diameter of 13mm, 16mm and 19mm respectively. A formula to predict the shear bearing capacity of stud is proposed by considering the influence of weld collar and group stud effect. A shear-slip model of stud is established based on experimental and FE analysis results.

→ Read the full paper at <https://doi.org/10.1016/j.istruc.2023.03.185>



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