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Spotlight on *Structures*



Editor's Featured Article

Associate Editor, Jason Ingham, has selected a paper on the rabbeted-grouting-splicing method for prefabricated composite slabs as the Featured Article for Volume 83 of *Structures*.

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Experimental and numerical analysis of flexural performance in rabbeted-grouting-spliced composite slabs

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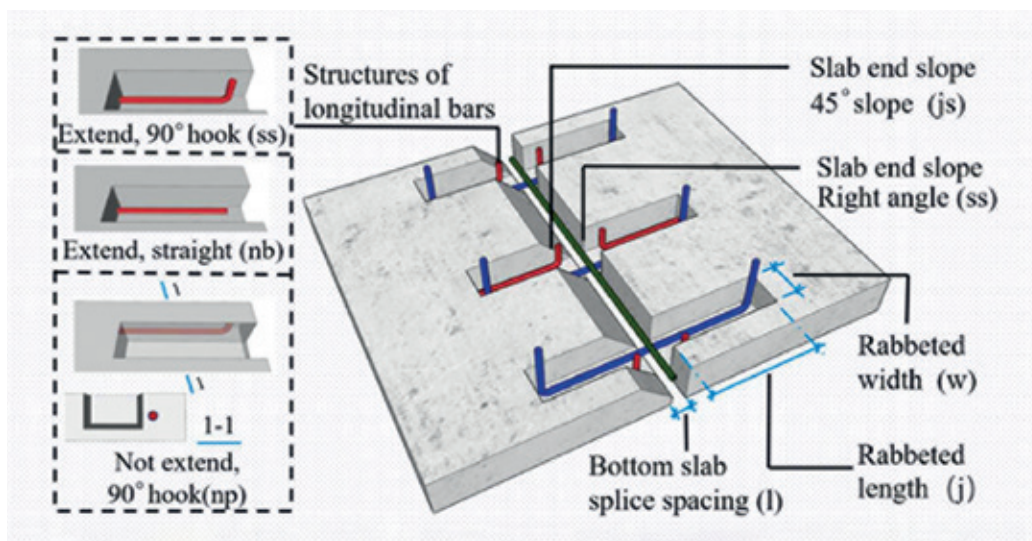
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This study addresses splicing challenges in composite slabs by introducing the rabbeted-grouting-splicing (RGS) method for prefabricated bottom slabs. The RGS technique involves forming rabbets on the sides of prefabricated slabs and grouting into

the joints to create an integral bottom slab. Eleven slabs were evaluated using static load tests and finite element simulations to assess the flexural performance of RGS composite slabs. The research investigates the impact of key structural parameters, elucidates microscopic failure mechanisms at the bonding interface, and examines stress development. Utilising existing codes and the cohesive zone model, we propose calculation methods for cracking moments, peak moments, and bending stiffness of RGS composite slabs. Experimental results indicate that RGS composite slabs achieve up to a 15.96% increase in initial flexural stiffness, a 40.77% increase in cracking moment, and a 5.71% increase in peak moment compared to cast-in-place slab.

Furthermore, enhancements such as a 45° slope at the slab end and optimised rabbeting dimensions contribute to peak moment increases of up to 17.00% and stiffness enhancements of up to 16.90%. The proposed calculation methods show high accuracy, with stiffness calculations exhibiting errors below 13% when compared to experimental measurements. These findings validate the RGS method as a viable and efficient solution for improving the flexural performance of composite slabs in practical engineering applications.

→ Read the full paper at <https://doi.org/10.1016/j.istruc.2025.110898>



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