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# Spotlight on *Structures*

## Read the latest issue

Volume 32 of Structures (August 2021) is now available to read at www.sciencedirect.com/journal/structures/vol/32.

Editor-in-Chief, Leroy Gardner, has selected a paper on side plate connections in an S-CFST column frame under a column-loss scenario as his 'Featured Article' from this issue. The article will be available free of charge for six months.


## Editor-in-Chief's Featured Article

**Investigation of side plate connections in an S-CFST column frame under a column-loss scenario**

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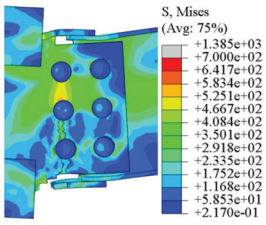
**Abstract**

The progressive collapse resistance of four full-scale special-shaped columns composed of concrete-filled steel tubes (S-CFST column)-steel beam assemblies was studied in this paper. The failure modes, deflection profiles, vertical resistance development mechanisms and internal force development at the assumed plastic hinge section under the influence of infilled concrete, various span-to-height ratios of the steel beam and different connection details were compared. The test results showed that the fracture failure of all the specimens first occurred near the full penetration weld of the bottom beam flange or the bottom cover plate at the end of the side plate. Fracture failure of the steel beam web or shear plate occurred through the bolt holes. The beam chord rotation ranged from 0.055 to 0.088. The concrete infilled steel tube improved the ductility of the assembly and resulted in the development of the catenary mechanism, while reducing the span-to-height ratio of the steel beam resulted in the delay of the initiation of the mixed mechanism stage. Additionally, the development of the catenary mechanism was more sufficient for the specimen with the concrete infilled steel tube than the specimen without the concrete infilled steel tube under the same vertical displacement. The results showed that the ACPSP connection can avoid premature fracture of the full penetration weld and improve its progressive collapse resistance. By reducing the span-to-height ratio of the steel beam and using the ACPSP connection, the beam-column assemblies experienced not only the flexural and mixed mechanism stages but also the catenary mechanism stage. The GSPCP connection was proposed to improve the stress concentration in the ACPSP connection. Through further analysis by the verified finite element model, it is evident that the GSPCP connection can further improve the progressive collapse resistance of the S-CFST column-steel beam joint assembly.




→| Read the full paper at **https://doi.org/10.1016/j.istruc.2021.03.039**

## Call for papers

**SEMC 2022: Eighth International Conference on Structural Engineering, Mechanics and Computation, 5–7 September 2022, Cape Town, South Africa**

SEMC 2022 aims to bring together academics, researchers and practitioners in all areas of structural engineering and related disciplines (including mechanics of materials and structures, and associated computation), to review recent achievements in the advancement of knowledge and understanding in these areas, share the latest developments, and address the challenges that the present and the future pose.

Authors are invited to prepare an abstract of 200–300 words, and submit this to the Conference Editor, Prof. Alphose Zingoni of the University of Cape Town, via email (**alphose.zingoni@uct.ac.za**).

**Abstract submission deadline:** 30 September 2021
**Further information:** www.semc.uct.ac.za

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