Professor Chao Hou

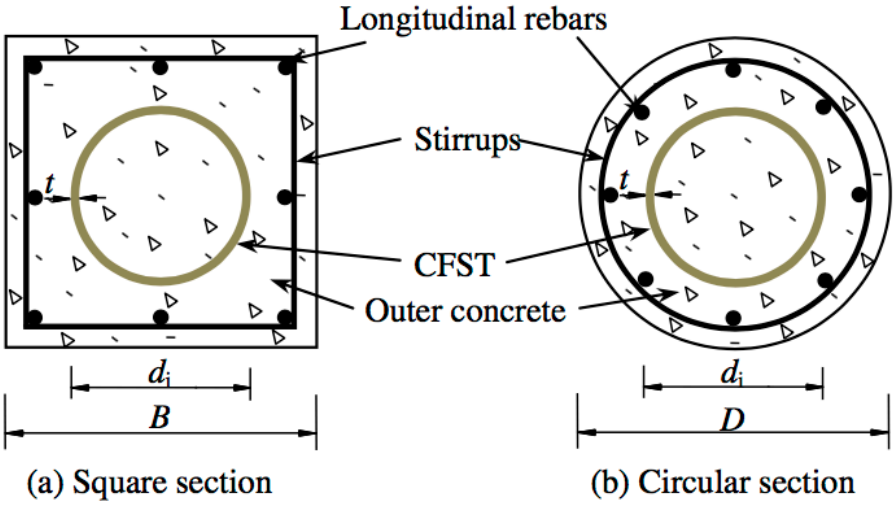

Fig. 1. Typical concrete-encased CFST column cross-sections.

From: Ren, Q., Han, L., Hou, C., Tao, Z., Li, S. (2017). Concrete-encased CFST columns under combined compression and torsion: Experimental investigation. Journal of Constructional Steel Research, 138, 729-741.

See:
https://sydney.edu.au/engineering/people/chao.hou.php
https://www.researchgate.net/profile/Chao_Hou6

Faculty of Engineering & Information Technologies
University of Sydney, Australia

Autobiography and Research Interests:

I joined the University of Sydney at 2015, and since then I have been enjoying the fantastic working environment. The superior facilities and - more importantly - the enthusiastic and supportive people here have allowed and motivated me to pursue high-quality research and also to expand my lines of research. Since being here I have extended my research field to include pre-fabricated construction, reliability analysis and green construction, as part of the emerging trend towards a circular economy. I have also been fortunate to be able to incorporate much of my research experience into my teaching."

Composite steel-concrete structures have been attracting worldwide attention for their ability to combine the advantages of two essential construction materials and enable them to function cooperatively. Dr Chao Hou's research focuses on how to optimise the design and performance of these unique structures.

"Within the past few decades, composite steel-concrete structures have become kind of 'irresistible' for investors and designers, because they encompass the superiorities of both steel and concrete and greatly enhance their efficiency in material use. Basically, composite structures can deliver better structural performance at lower cost.

"A large proportion of the world's recent modern infrastructure has been designed and constructed with composite elements. However, our understanding of composite structures - particularly under the combined effects of multiple loading conditions, natural hazards and corrosive environments - is not yet as mature as our understanding of traditional concrete or steel structures, and this is hindering their further application. This is what motivates me to advance our knowledge in this area.

"I'm fascinated by composite structures. I have contributed to the construction of the world's highest composite tubular power transmission tower, one of the world's longest composite truss bridges, and the highest super-high-rise building currently under construction in Beijing. My research has also informed several design standards in China.

Awards and Honors:

- Faculty of Engineering and IT Teaching Commendation, 2017.
- Faculty of Engineering and IT Teaching Commendation, 2016.
- Outstanding PhD Graduate of Tsinghua University, 2014.
- Outstanding PhD Graduate of Beijing City, 2014.
- Award for the Best Doctoral Dissertation of Tsinghua University, 2014.
- National Scholarship of China for PhD students, 2013.
- National Scholarship of China for Undergraduate students, 2008.

Selected Publications:

Li, S., Han, L., Hou, C. (2018). Concrete-encased CFST columns under combined compression and torsion: Analytical behaviour. Journal of Constructional Steel Research, 144, 236-252

Chang, H., Xia, J., Guo, Z., Hou, C., Din, W., Qin, F. (2018). Experimental study on the axial compressive strength of vertical inner plate reinforced square hollow section T-joints. Engineering Structures, 172, 131-140.

Hou, C., Han, L. (2017). Analytical behaviour of CFDST chord to CHS brace composite K-joints. Journal of Constructional Steel Research, 128, 618-632

- Hou, C., Han, L., Mu, T., He, S. (2017). Analytical behaviour of CFST chord to CHS brace truss under flexural loading. Journal of Constructional Steel Research, 134, 66-79.
- Hou, C., Han, L., Mu, T. (2017). Behaviour of CFDST chord to CHS brace composite K-joints: Experiments. Journal of Constructional Steel Research, 135, 97-109.
- Han, L., Hua, Y., Hou, C., Wang, Q. (2017). Circular Concrete-Filled Steel Tubes Subjected to Coupled Tension and Chloride Corrosion. Journal of Structural Engineering, 143(10), 1-13.
- Ren, Q., Han, L., Hou, C., Tao, Z., Li, S. (2017). Concrete-encased CFST columns under combined compression and torsion: Experimental investigation. Journal of Constructional Steel Research, 138, 729-741.
- Ren, Q., Han, L., Hou, C., Hua, Y. (2017). Experimental behaviour of tapered CFST columns under combined compression and bending. Journal of Constructional Steel Research, 128, 39-52.
- Yang, Y., Hou, C. (2017). Performance of partially compressed CFST columns through dissimilarly shaped bearing plates under axial load. Thin-Walled Structures, 120, 333-354.
- Hou, C., Han, L., Wang, Q., Hou, C. (2016). Flexural behavior of circular concrete filled steel tubes (CFST) under sustained load and chloride corrosion. Thin-Walled Structures, 107, 182-196.
- Hua, Y., Hou, C., Han, L. (2015). Behavior of cfst tensile members subjected to chloride corrosion. Gong Cheng Li Xue (Engineering mechanics), 32, 149-158.
- Yang, Y., Hou, C. (2015). Behaviour and design calculations of recycled aggregate concrete-filled steel tube (RACFST) members. Magazine of Concrete Research, 67(11), 611-620.
- Hou, C., Han, L., Zhao, X. (2015). Behaviour of circular concrete filled double skin tubes subjected to local bearing force. Thin-Walled Structures, 93, 36-53.
- Yang, Y., Hou, C., Meng, C., Han, L. (2015). Investigation on square concrete filled double-skin steel tube (CFDST) subjected to local bearing force: Experiments. Thin-Walled Structures, 94, 394-409.
- Hou, C., Han, L., Zhao, X. (2014). Concrete-filled circular steel tubes subjected to local bearing force: Finite element analysis. Thin-Walled Structures, 77, 109-119.

- Yang, Y., Hou, C., Wen, Z., Han, L. (2014). Experimental behaviour of square CFST under local bearing forces. Thin-Walled Structures, 74, 166-183.
- Ren, Q., Han, L., Lam, D., Hou, C. (2014). Experiments on special-shaped CFST stub columns under axial compression. Journal of Constructional Steel Research, 98, 123-133.
- Ren, Q., Hou, C., Lam, D., Han, L. (2014). Experiments on the bearing capacity of tapered concrete filled double skin steel tubular (CFDST) stub columns. Steel & Composite Structures: an international journal, 17(5), 667-686.
- Hou, C., Han, L., Zhao, X. (2013). Concrete-filled circular steel tubes subjected to local bearing force: Experiments. Journal of Constructional Steel Research, 83, 90-104.
- Hou, C., Han, L., Zhao, X. (2013). Full-range analysis on square CFST stub columns and beams under loading and chloride corrosion. Thin-Walled Structures, 68, 50-64.
- Han, L., Hou, C., Wang, Q. (2012). Square concrete filled steel tubular (CFST) members under loading and chloride corrosion: Experiments. Journal of Constructional Steel Research, 71, 11-25.