

All articles in *Structures* are available free of charge to paying-grade members of the Institution as one of their membership benefits.

The journal is available online at:
www.structuresjournal.org

Spotlight on Structures



Read the latest issue

The Featured Article for Volume 61 of *Structures* is now available. Lei Wang, Associate Editor, has chosen an article on the shear behaviour of narrow joints in socket connections. This article is available to read free of charge.

Editor's Featured Article

Experimental study on direct-shear behaviour of narrow joints in socket connections for precast pier-to-pile footing systems

Mingzhu Chen^{a,b}, Wouter De Corte^b,
Haibo Jiang^a and Luc Taerwe^b

^a School of Civil and Transportation Engineering, Guangdong University of Technology, Guangzhou, China

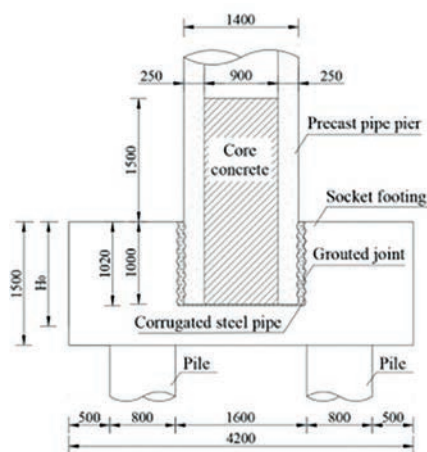
^b Department of Structural Engineering and Building Materials, Ghent University, Ghent, Belgium

The application of precast concrete segmental piers in modern construction,

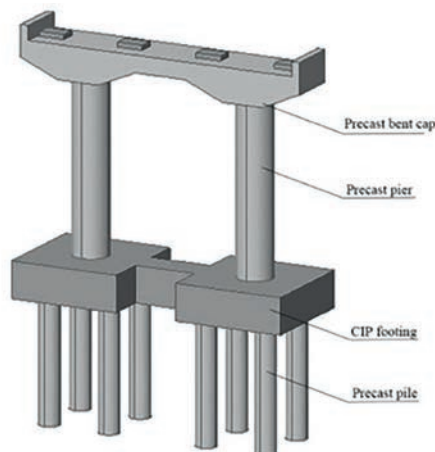
being economic and environmental, is an inevitable global trend. With the ease of construction and high performance, socket connections have a broad prospect for substructures, which can connect precast piers to footings with preformed sockets through narrow joints grouted by high-performance cement-based materials. However, these joints are different in direct-shear behaviour than those in precast concrete segmental beams. In this study, the direct-shear behaviour of narrow joints in socket connections for precast pier-to-pile footing systems is investigated through experimental analysis. The joint specimens

were designed as full-scale local models for push-out tests. The results reveal that improving the tensile strength of the grouting material by applying steel-fiber reinforced concrete or self-compacting concrete, decreasing the width of the joints and increasing the number of shear keys are all beneficial to improve the direct-shear performance, while the use of corrugated steel pipes as a stay-in-place formwork without additional reinforcements in footings reduces this characteristic.

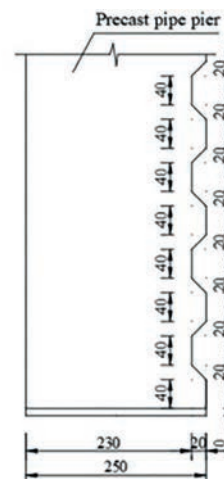
→ Read the full paper at <https://doi.org/10.1016/j.istruc.2024.106006>



(a) Test prototype



(b) Overall structure of the project



(c) Shear keys



Register for alerts

If you'd like to receive regular updates about new content in *Structures*, register for email alerts at www.sciencedirect.com.