

IWM2000

Session 3 Design

CONCLUSIONS AND REMARKS

The Aim is to develop Design Manuals and Standards and get better Analytical Approach-Programs for Micropiles especially under Earthquake loading and Cyclic loading.

Research work has been done for getting better knowledge of

- Micropile groups and network systems under earthquake loading especially in the US and Japan
- Axial micropile stiffness (Poland)
- Small diameter injection piles in sand under cyclic loading (Germany)
- Bearing capacity of impact-driven RR-Piles (Finland)
- Design and development of CSG-piles (Finland)
- Behaviour of Corrosion protection of micropiles (Germany)

Precise Research issues and challenges:

- Full-scale loading tests are needed in future (test-standards not ready yet)
- Rather good understanding of bearing capacity of isolated micropiles and, to some extent, of group-effects
- Beneficial network/interlocking effect not established
- Effects of raking still not clear; one should distinguish "outside" micropiles from micropiles creating interlocking
- Raked piles might be beneficial for seismic design
- Stiffness and/or settlement estimates are necessary for rational design of supported structures
- Behaviour under cyclic axial loads should be checked carefully, as the safety might drop significantly
- Tolerances for cracking (and efficiency of corrosion protection) are linked to the bonds between the grout and the steel core

11.7.2000 Prof. Roger Frank/Prof. Sakari Lotvonen