

R. HEIKKILÄ, J. HOVILA, K. NEVALA, T. MAKKONEN, P. KILPELÄINEN, J. TÖRNQVIST, J. LIUKAS. **Automated deep stabilization for construction.** *Gerontechnology* 2012;11(2):87; doi:10.4017/gt.2012.11.02.337.00 **Purpose** Several research and development projects have been carried out in Finland between 2007 and 2011 to develop and test a new automated process for deep stabilization (or mixing). **Method** Main parts of the new process were: measurement of 3D water content of the soil base using electrical resistivity sounding method, evaluation for the optimal amount of stabilization material needed, a design modeling and XML based information transferring tool for structure design (Citycad), a new 3D guiding system of deep stabilization machines using two GNSS antennas for positioning tasks, a graphical user-interface for an operator, and an accurate measurement and control system for stabilization material flow and feeding. In the automated working process the main aim was to design, measure, save, transfer, and utilize all the different useful data using 3-D information models throughout the whole working process of the deep stabilization. **Results & Discussion** Several practical tests and experiments were carried out. The most crucial results of the tests are reported. An analyses and comparison between the new automated deep stabilization process and the traditional one used mostly in developed countries is made. Great economical saving and environmental benefit potentials are reported and evaluated.

Keywords: 3D, automation, deep stabilization

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Full paper: doi:10.4017/gt.2012.11.02.337.798

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