


CITY OF CHICAGO

DEPARTMENT OF BUILDINGS

CODE MEMORANDUM

To: Department of Buildings Plan Examiners and Inspectors

From: Judith Frydland
Commissioner 

Date: April 4, 2016

Re: **Soil Improvement Systems - Geopiers or Stone Columns**

1. The use of Geopiers or Stone columns soil improvement systems to increase the load bearing capacity of soil shall demonstrate that the bearing capacity of the soil resulting from the installation of the soil improvement system is 200% of the proposed safe load as required by the section 18(13-132-070)(b)(3) of the Chicago Municipal Code

For a one story building using Geopiers or Stone Columns, the final soil bearing capacity may be established by calculations with minimum safety factor of three or by use of the individual Geopier or Stone column load test method describe below.

2. For buildings two stories or greater in height the design soil bearing capacity achieved by the soil improvement system shall be established by the Load Test Method described in item #3 below.
3. The Load Test Method: After the installation of the soil improvement system, the load test(s) shall be performed to verify soil bearing capacity.
 - A. The kind of load test to be performed such as Compression or Tension load test shall be decided by the project structural engineer in consultation with the Department of Buildings (DOB) Structural Bureau.
 - B. The protocol for the load tests shall be prepared and signed and stamped by the Licensed Structural Engineer of record. The load test protocol shall be submitted to the DOB Structural Bureau for review and electronically uploaded as a permanent record document to the building permit file.
 - C. The Load Test requirements are:
 1. A continuous foundation supported on a minimum of three Geopiers / Stone Columns shall be load tested.
 2. One load test shall be performed for the most critically loaded completed footing in the area of the most critical soil.
 3. Individual Geopiers or Stone Columns shall be load tested as required by the DOB Structural Bureau.

4. The Service test load used for the load test shall be calculated based on the allowable soil bearing capacity and footing dimensions.
5. The Field Load test method shall comply with Section 18(13-132-070) Sub-sections (b) 3, 4 and 5 of the Chicago Municipal Code.

The findings from the load test(s) shall be reviewed with the DOB Structural Bureau before the installation of foundations. If the soil bearing capacity is found to be insufficient for the test load then the foundation system must be re-designed or additional soil improvement provided to achieve the required soil bearing capacity. Verify with the conditions of acceptance for the load test with Code Section 18(13-132-070)(c)(1)(2) of the Chicago Municipal Code. Revised structural calculations and plans for these structural changes shall be submitted and uploaded to the Department of Buildings as a permanent record document to the building permit file.

The Department of Buildings reserves the right to limit the height in stories or feet for buildings or structures seeking to use of Geopiers or Stone Columns in lieu of using deep foundations or a mat foundation.