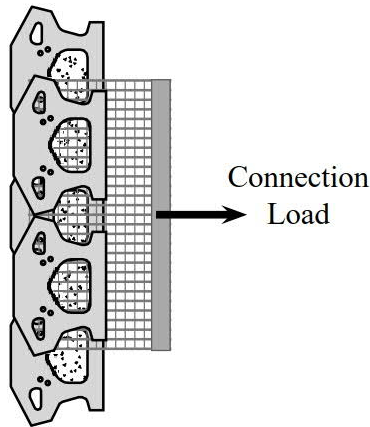
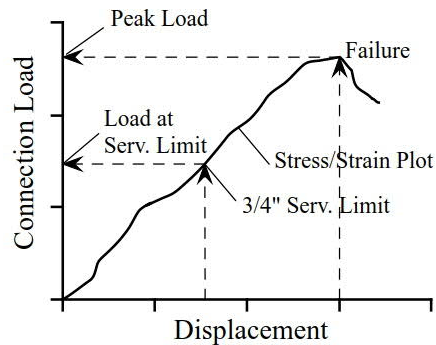


Connection Strength Testing

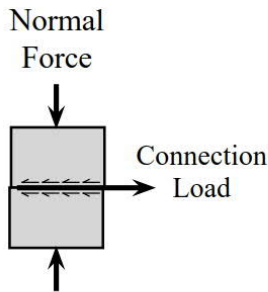
The connection capacity between geosynthetic soil reinforcement and a modular concrete wall unit is a complex interaction that can only be determined by laboratory testing. NCMA proposed a test method, SRWU-1, now ASTM D6638, which outlines the accepted practice for connection testing and evaluation of the results which is utilized by Keystone. A schematic of the connection testing setup and laboratory developed load curves are shown below.



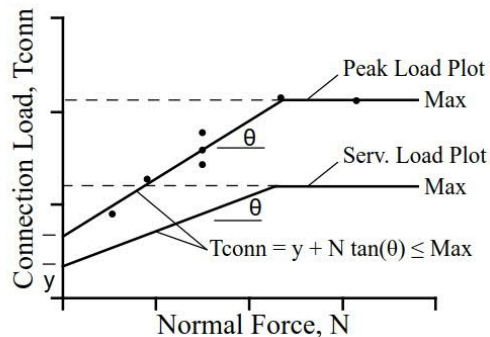
Top View



Load Test at One Normal Force



Side View



Multiple Load Tests at Varying Normal Loads

Connection Test Setup

Full laboratory connection testing has been performed with Keystone Pinned and Lip/Lug units and several different geosynthetic soil reinforcement manufacturers. Note that connection curves can also be bi-linear and have two slopes vs. one shown in figure above. This data is utilized in each wall design to determine the maximum permissible connection value that can be utilized at each reinforcement level.

Note: The increased depth of the Standard III unit (18” to 21” depth) has considerably more connection capacity than the Compac III unit (12” depth) and should be considered where maximum design safety and high performance is required. Connection capacity is a limiting factor in many taller wall designs and should be carefully evaluated to conform with design standards.