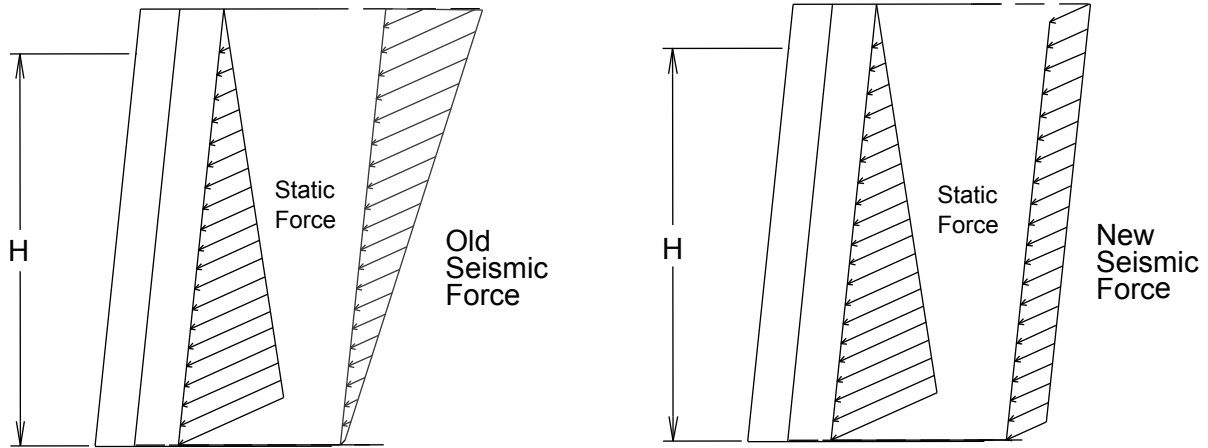


Seismic Force Distribution

For years the internal seismic forces that effect internal and external stability have been modeled by an upside-down triangle. This way of applying seismic force to a retaining wall came about before our industry had the years of field experience it now does. This method was difficult to use in many applications and in many cases seismic design was therefore ignored all together.

Figure 1: Load Diagrams



We have used our recent full scale testing to determine that the seismic pressure more closely matches a rectangle shape not a triangle. This gives values that are not only more accurate, but are easier to design with.

The researchers made the following conclusion upon finding this change in theory; "In practical terms it demonstrates that existing design methods AASHTO or National Concrete Masonry Association underestimate the seismic capacity of flexible wall systems." (April 2005 Journal of Geotechnical and Geoenvironmental Engineering: Large-Scale Shaking Table Tests on Modular-Block Reinforced Soil Retaining Walls)

Since Allan Block's full scale testing performed in 2002 by Columbia University and the University of Delaware, the NCMA has adopted the rectangular seismic distribution as their standard and has incorporated this method into their most recent SRWalls 4.0 software and SRW Engineering Manual, 3rd edition.

For more information see the following references:

Executive Summary - Seismic Testing: AB DOC. #R0903

Allan Block Engineering Manual: AB DOC. #R0904

Figure 2: Test Results

