Horizontal layers of geosynthetic reinforcement can be included with retaining wall backfills to provide a reinforced soil mass that acts as a gravity structure to resist the earth forces developed behind the reinforced zone. Reinforcement types are geogrid, woven geotextile and polyester strap. The local stability of the backfill at the front of the wall is assured by attaching the reinforcement to facing units constructed with polymeric, timber, concrete or metallic wire basket materials comprised of a variety of shapes. In North America it has been shown that reinforced soil walls can be constructed for up to 50% of the cost of conventional gravity wall structures.
Analysis and design calculations for reinforced soil walls are related to external, internal, facing and global mechanisms. Global modes refer to instability mechanisms that pass beyond the composite reinforced soil structure. These analyses are routinely handled using conventional slope stability methods of analysis.

**Modular masonry concrete wall**

a) base sliding  
b) overturning  
c) bearing capacity (excessive settlement)  
d) tensile over-stress  
e) pullout  
f) internal sliding  
g) connection failure  
h) column shear failure  
i) toppling

Design modes for reinforced soil walls: a), b), c) external; d), e), f) internal; g), h), i) facing

**About the IGS**

The International Geosynthetics Society (IGS) is a non-profit organization dedicated to the scientific and engineering development of geotextiles, geomembranes, related products and associated technologies. The IGS promotes the dissemination of technical information on geosynthetics through a newsletter (IGS News) and though its two official journals (Geosynthetics International - [www.geosynthetics-international.com](http://www.geosynthetics-international.com) and Geotextiles and Geomembranes - [www.elsevier.com/locate/geotexmem](http://www.elsevier.com/locate/geotexmem)). Additional information on the IGS and its activities can be obtained at [www.geosyntheticssociety.org](http://www.geosyntheticssociety.org) or contacting the IGS Secretariat at [IGSsec@aol.com](mailto:IGSsec@aol.com)

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