

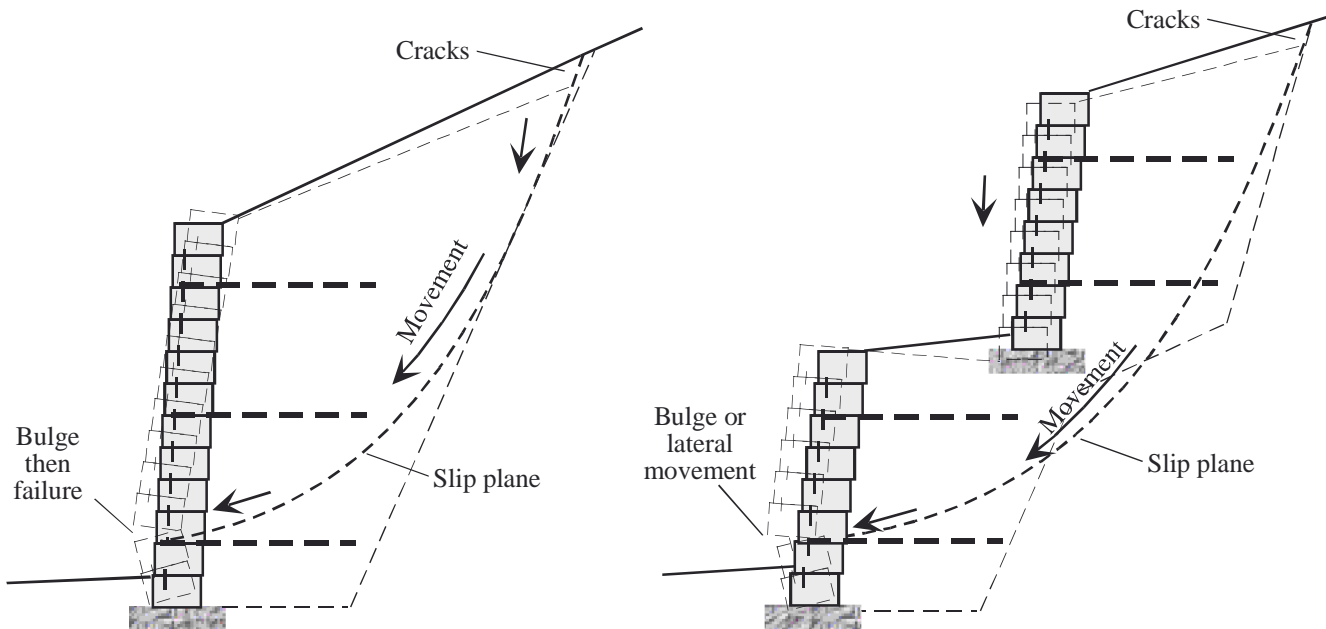


Reinforced Soil Walls

Reinforced soil walls are composite structures which utilize structural Keystone units and geosynthetic soil reinforcement to create a stable mass that can be designed and constructed to much greater heights than simple gravity walls. These structures are commonly referred to as MSE (mechanically stabilized earth) structures or reinforced soil SRW's (segmental retaining walls). Note that only the Keystone "pinned" units are designed to properly accommodate earth reinforcement and provide facial stability and connection strength for these larger and more critical structures.

Reinforced walls rely on the mass of the composite structure to provide external stability (sliding, overturning, etc.) and the strength of the soil reinforcement, connections, and Keystone units to be internally stable. The principal modes of failure observed in reinforced wall structures are:

- 1) Inadequate soil reinforcement length and spacing to prevent internal/external failure.
- 2) Use of poor quality soils and/or improper placement and compaction of soils.
- 3) Inadequate surface runoff or internal soil drainage provisions (ie: groundwater).
- 4) Tiered walls not being designed and constructed as complex soil structures.



**Internal/External
Failure Mechanism**

**Tiered Wall
Failure Mechanism**

Reinforced walls are considerably more complex than simple gravity walls and must be designed accordingly. The soil strength and stability component of the design takes on much greater importance as the structures become taller requiring more attention to site specific soils information, proper design considerations, and contractor quality assurance provisions.