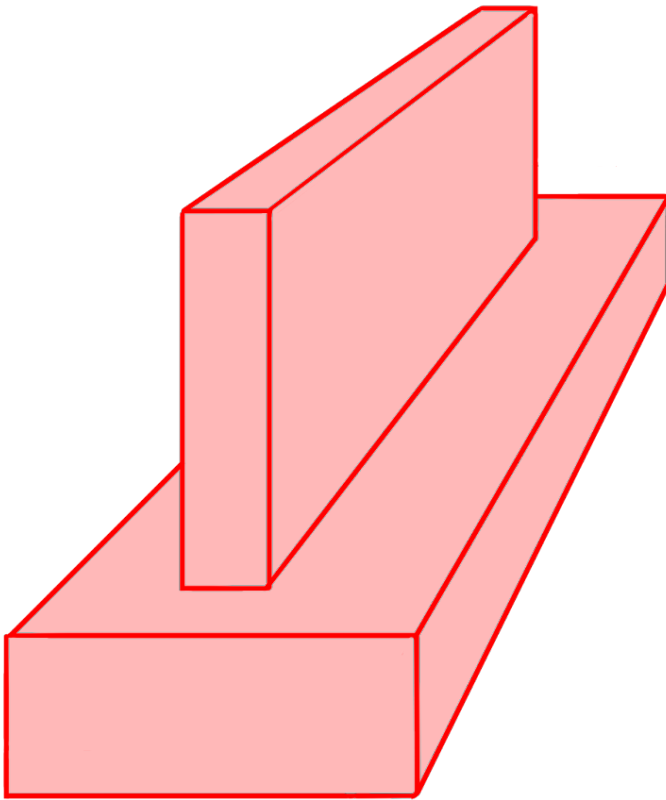
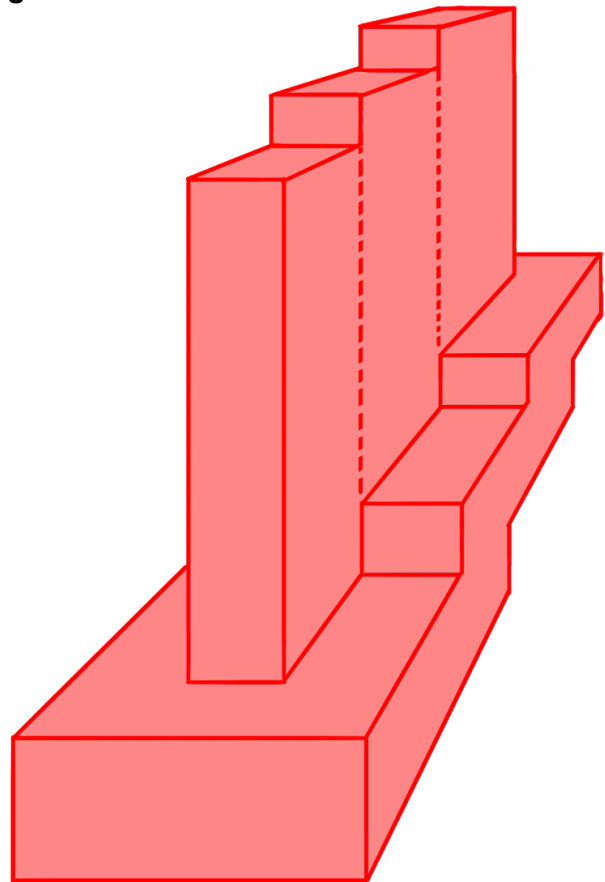


Retaining Wall Design Alternatives



Alternative 1:
Reinforced Concrete
Cantilever Retaining Wall
Continuous Foundation



Alternative 2:
Reinforced Concrete
Cantilever Retaining Wall
Stepped Foundation

Retaining Wall Decision Matrix

Criteria	Alternative 1: Reinforced Concrete Cantilever: Continuous Foundation	Alternative 2: Reinforced Concrete Cantilever: Stepped Foundation
Strength	2	1
Cost	0	2
Total	2	3

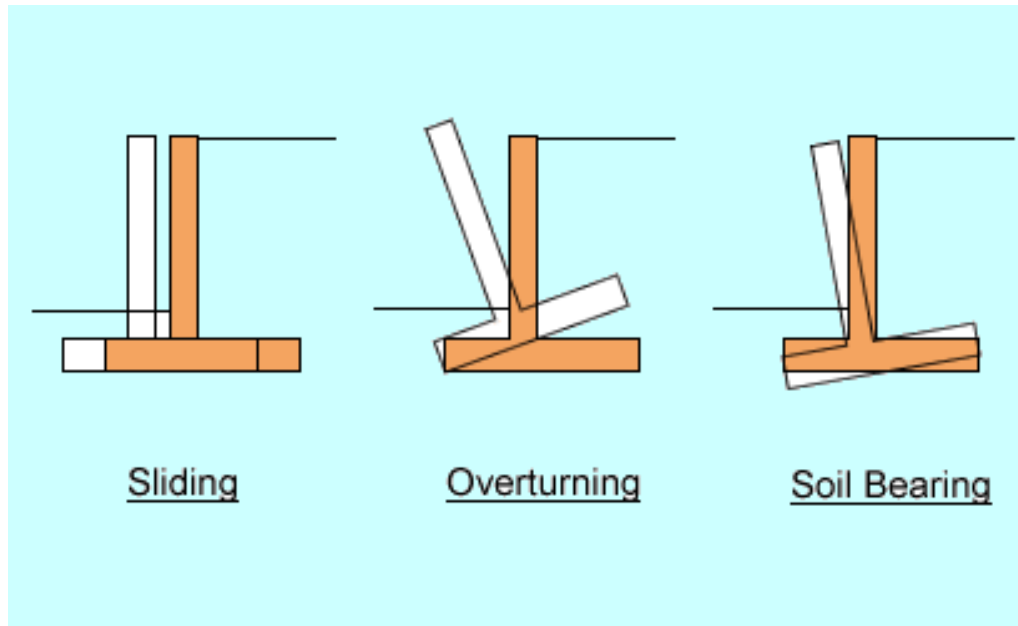
Retaining Wall Analysis

$$FS_{\text{overturning}} = \frac{\Sigma M_R}{\Sigma M_o}$$

$$FS_{\text{sliding}} = \frac{\Sigma F_y + Bc'_s + P_p}{P_a}$$

$$FS_{\text{Bearing Capacity}} = \frac{q_u}{q_{\text{max}}}$$

	10-ft Walls	12-ft Walls	13-ft Walls	14-ft Walls	15-ft Walls	17-ft Walls	21-ft Walls
FS Overturning	3.05	2.85	2.73	2.64	2.56	2.67	2.30
FS Sliding	2.62	2.17	1.99	1.85	1.71	1.65	1.51
FS Bearing Capacity	7.24	6.2	5.87	5.47	5.37	4.72	3.91



Safety Factors

- **Overturning FS > 2**
- **Sliding FS > 1.5**
- **Bearing Capacity FS > 3**