

VAOT EARTH RETAINING SYSTEM SELECTION CHART

GENERAL CLASSIFICATION

APPROVED SYSTEMS

COMMENTS

A. FILL WALLS ^(1,2)

1. Rigid Gravity and Semi-Gravity Walls

→ Cast-in-place (CIP)
Concrete Gravity Wall

- 10 ft. max. height
- Settlement sensitive
- May require deep foundation

→ CIP Concrete Cantilever/
Counterfort Wall

- Settlement sensitive
- 30 ft. max. height (cantilever)
- 60 ft. max. height (counterfort)
- May require deep foundation

2. Prefabricated Modular Gravity Walls

→ Modular Crib/Bin Wall
-Doublewal[®]
-Stawal[®]
-Timber (VAOT)
-Contech[®]
-T-Wall[®]
-Redi-Rock^{™*}

-Gabion**

- General
- 35 ft. max. height (except as noted)
 - Some systems not settlement tolerant
- *8 ft. max. height
 - **25 ft. max. height
 - **Labor intensive
 - **Abrasion susceptible
 - **Need good stone source
 - **Wire baskets subject to corrosion
 - **Settlement tolerant

3. Mechanically Stabilized Earth (MSE) Walls

→ Segmental, Precast Facing
MSE wall
-Reinforced Earth[®]
-Retained Earth[™]

- 65 ft. max. height
- Backfill must meet electrochemical requirements
- May Interfere w/underground utilities
- Scour susceptible
- Minimum base width = 0.7H
- Settlement tolerant

→ Geotextile/Geogrid/Welded
-Wire Facing MSE Wall
-Tailed Gabions
-Redi-Rock[™]
with geogrids

- See Gabions
- Also suited for temporary conditions

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B. CUT WALLS ⁽³⁾

<p>1. Non-Gravity Cantilevered Walls</p>	<p>→ Sheet Pile Wall → Soldier Pile and Lagging Wall</p>	<ul style="list-style-type: none"> •15 ft max. height •Hard to drive in, dense gravel/boulders •Vibration during driving •Large lateral movements possible
<p>2. Anchored Walls</p>	<p>→ Ground anchor (tieback) -Sheet Pile Wall -Soldier Pile and Lagging Wall → Deadman anchor -Sheet Pile Wall -Soldier Pile and Lagging Wall</p>	<ul style="list-style-type: none"> •65 ft. max. height •Requires specialized equipment •Underground easement required for anchors •Difficult to develop anchor capacity in loose silts and soft clays •Requires corrosion protection
<p>3. In-situ Reinforced Walls</p>	<p>→ Soil-Nailed Wall</p>	<ul style="list-style-type: none"> •Soil must be self supporting for height of 5 ft. •Nails require underground easements •Not appropriate in loose silts and soft clays •Permanent dewatering required •Suited in areas with limited head space. •Wall embedment not required
<p>Notes:</p>		
<p>1. Fill Wall construction refers to wall systems that are constructed from the base of the wall to the top (bottom-up construction).</p>		
<p>2. Designers should consider Reinforced Soil Slopes (RSS) in applications where steepened slopes (1 on 1) may be an appropriate alternative to a wall.</p>		
<p>3. Cut Wall construction refers to wall systems that are constructed from the top of the wall to the base (top-down construction).</p>		
		<p>Revised: September 10, 2007</p>