

Tall Walls

Since 1987, VERSA-LOK® segmental retaining walls have been used by private clients, state transportation departments, and the U.S. Army Corps of Engineers for countless tall wall projects—many exceeding 30 feet in height. The VERSA-LOK system is routinely chosen as the preferred alternative to traditional retaining wall types and other segmental units. Why? Because VERSA-LOK offers an unmatched combination of value and performance. VERSA-LOK systems typically offer savings of 25-40% compared to cast-in-place, precast panel, and crib-type structures.

VERSA-LOK solid units utilize high-strength, low-absorption concrete to create a consistently durable product that meets and exceeds industry standards.

Fast, economical installation.

No concrete footings or footings below frost are required for VERSA-LOK walls—eliminating the need for deep excavations. Instead, VERSA-LOK walls are placed on shallow, granular leveling pads approximately six inches thick and 24 inches wide.

VERSA-LOK modular units are dry stacked without mortar and do not require construction forms of any type. A unique interlocking mechanism provides quick, uniform alignment during installation.

VERSA-LOK systems permit fast and easy installation. An experienced four-person retaining wall crew will routinely install 400 square feet of VERSA-LOK retaining wall per day. Units are available for immediate delivery from existing inventories and heavy construction equipment is generally not required for successful construction.

Solid, durable concrete units.

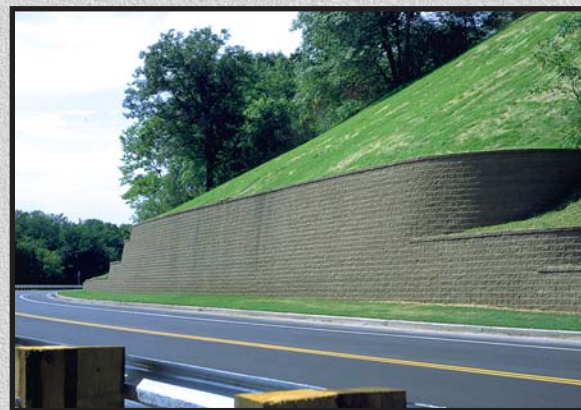
VERSA-LOK solid units offer unsurpassed durability before, during, and after construction. Unlike other segmental systems, VERSA-LOK units have no cores to fill—eliminating additional materials, unnecessary labor, and uncertainties of improper construction.

Flexible base design.

As flexible systems, VERSA-LOK walls can tolerate minor earth movement without damage. This feature makes VERSA-LOK walls well-suited to climates that experience freeze/thaw cycles. In addition, because lateral earth pressures are not transferred to a footing, tall VERSA-LOK walls may be constructed on soils with bearing capacities less than those required for cantilevered retaining walls.



Dale City, Virginia



Prescott, Wisconsin



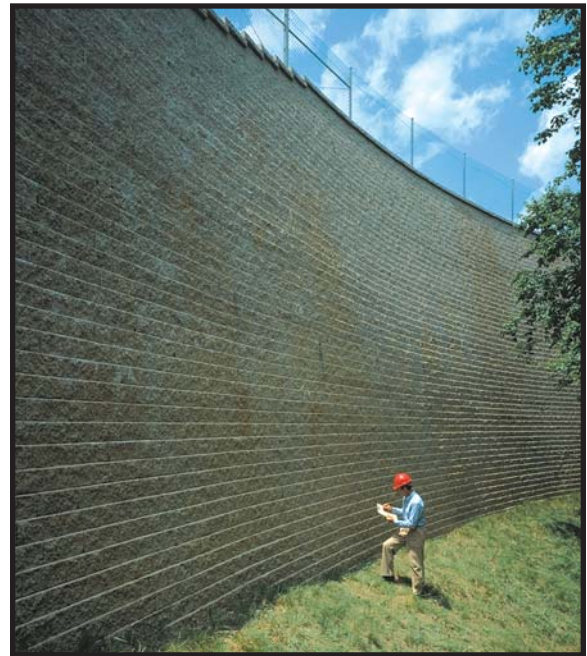
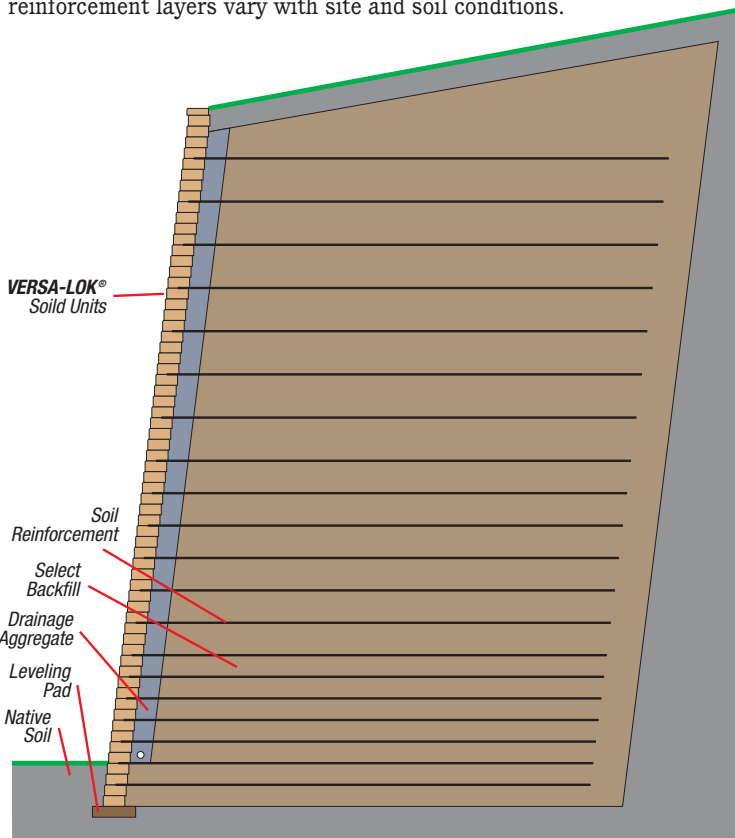
Wilton, Maine



Plymouth, Massachusetts

To construct tall VERSA-LOK® walls, horizontal layers of geosynthetics are used to reinforce soil behind walls. Geosynthetics do not act as tie-backs for wall faces. Rather, geosynthetics and soil combine to create reinforced soil structures that are strong and massive enough to resist forces exerted on them. In soil-reinforced walls, VERSA-LOK units simply retain soil between layers of geosynthetics and provide attractive, durable faces.

The illustration below highlights components of a VERSA-LOK segmental retaining wall system. Each course of VERSA-LOK units is set back 3/4-inch from the front of the course beneath it. This battered arrangement causes walls to step back into retained soil at approximately seven degrees. Walls with batter are structurally more stable than vertical walls because gravitational forces “pull” walls into retained soil. Design and placement of geosynthetic soil reinforcement layers vary with site and soil conditions.



Plymouth, Massachusetts

Basic reinforcement design methodology

Standards, guidelines, and procedures for constructing segmental retaining walls are based on conventional engineering principles. Established methodologies for soil-reinforced segmental wall design have been developed and approved by AASHTO, FHWA, and NCMA.

To properly stabilize a segmental retaining wall system, the reinforced soil mass must be designed large enough to resist loads from outside the wall system (external stability) and must contain enough soil reinforcement to keep the soil mass together (internal stability). For external stability, the reinforced soil mass must have sufficient width to resist sliding, overturning, and bearing failure. For internal stability, soil reinforcement must have sufficient strength and layers to resist tensile overstress (breakage) and sufficient length to resist pullout from stable soil.

VERSA-LOK offers a variety of technical support including in-house engineering assistance and reference literature. Call (800) 770-4525 with questions regarding applications and proper design for VERSA-LOK segmental retaining walls.



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