PREMIER™ WALL SERIES
from Rockwood Retaining Walls

Facts, Figures & Insight from the Field

How can Premier perform as well as a solid block? Isn't a heavier block better?

When engineers design an SRW (segmental retaining wall), they evaluate the total weight of the installed wall unit-not jsut the weight of the block. Typically they evaluate this against an area of 8" high x 12" deep x 18" wide, or "one cubic foot".

Design methodology calculations use "weight per cubic foot" as their unit of measure. When considering the weight per cubic foot, engineers consider not only the weight of the block iteslf, but the effective weight of the block and fill material designed to "retain" the earth behind it. All retaining wall units with a 12" deep dimension are required to have approximately the same effective weight per cubic foot regardless of block shape to meet design standards. Over time an effective weight of approximately 120/lbs has become an unoffical "standard" for wall design.

Retaining wall blocks come in a variety of shapes, dimensions and weights. The blocks listed below are sold and marketed as 1 square foot

- ~75 lbs (Allan Block 8" unit)
- 80 lbs (Rockwood Classic)
- 54 lbs (Rockwood Premier 8)
- 74 lbs (Keystone Regal Stone Pro)

Premier 8

Classic 8

There are 2 components that create the "effective weight" of a retaining wall block to determine the systems overall mass and stability:

- The block itself.
- The stone in-fill placed in the cores, and between adjacent SRW units.

A normal weight, solid, dry cast concrete masonry block weighs between 110 - 145 lbs/cubic foot depending on the mix design. Stone infill weighs about 110 lbs/cubic foot. So, the total cubic weight of a retaining wall unit plus the stone infill is about 120 lbs regardless of the block shape and individual dimensions.

Total effective weight is the most critical component. While the effective unit weigh can vary slightly between units, most retaining wall manufacturers, wall design engineers, and testing labs use an effective weight of 120lbs/cubic foot as a reasonable combined weight of the block and rock infill. There are many different design software tools available for SRW design. All of these software programs use the same input parameters discussed in this paper.

How can a 54lb. Premier 8 retaining wall unit have an effective weight of 120lbs. ?

	Premier 8
Sq ft/block	1 sq ft
Block Weight	54 lbs
Block Weight/Cubic Ft	54 lbs
Stone Core Fill	66 lbs (110lbs/cubic ft)
Effective Total Weight	**120 lbs/cubic ft**

Effective unit weight is not an exact science, it's an approximation. Concrete and stone weigh differently from region to region. Not every cubic foot of wall area is exactly120lbs/cubic ft. Most systems are slightly less or slightly more than the 120.lbs. The order of magnitude is what is important.

For walls greater than 8 feet in exposed height, effective weight of individual units becomes a less significant design consideration. For taller walls the effective unit weight of individual units is not sufficient to resist the all earth loads behind the wall. The weight of soil can range from 120lbs. to 140 lbs. per cubic foot. A 12" inch column of 120 lb. blocks is no longer heavy or massive enough to "hold back" the tons of soil behind the wall. Geogrid reinforcement is incorporated in layers between compacted soil and connected to the blocks. The tensile strength of geogrid is effectively woven into the back-fill behind the blocks and provides a reinforced soil mass that is capable of retaining the earth behind the wall. This system is now called a mechanically stabilized earth wall.