

What Makes Allan Block the Best Designed Mortarless Retaining Wall Block on the Market?

When Bob Gravier invented the Allan Block Retaining Wall System no one, including Bob, realized how good his idea would work in the field. By 1997, after more than ten years of field performance, and approximately 30 million square feet (2.8 million square meters) of wall installed and performing well, it is time to summarize why Allan Block "Stands Above The Rest".

Allan Block's patented raised front lip is one of the key design features. The raised front lip and corresponding notch on the bottom of each block...

- Allows for blocks to be molded with varied setbacks. The Allan Block is available in three, six or twelve degree batters. The twelve degree battered Allan Block dates back to the original design and still the most commonly used product. The twelve degree batter reduces active earth pressures, which act on a wall or reinforced mass by up to 30 percent. Consequently, lower pressures result in walls that are more economical to construct (Figure 1).
- Provide a continuous shear key that is molded into the block. This design feature produces an interlock between each course of block providing the best block to block shear in the marketplace because of its continuity and the ability it provides to inspect it's condition at any time during the life cycle of the wall (Figure 2).
- Resists the migration of fines carried by water through the horizontal joints. This minimizes staining that occurs in areas were native soils contain fine red clays (Figure 3).

Allan Block's Hollow Core Design and closed cell configuration provides many benefits which add to the working stability and success of the system. The following list contains the major positive characteristics of this hollow core design:

- Moving water away from any retained soil mass is critical to the success of any retaining wall. In addition to a drain field constructed 12 in. (30 cm) behind the wall, the hollow core provides an alternate path for water to flow and drain away from the retained soil (Figure 4).
- Due to the closed cell configuration the unit weight of the facing increases when water backs up behind the wall. This provides additional stability during the most critical stages of wall performance. Additionally, the full wing design on each side of the Allan Block creates a secondary cell which is also closed and captures all of the rock fill to add to the facing weight and stability (Figure 5).

Figure 1 - Effects Of Batter

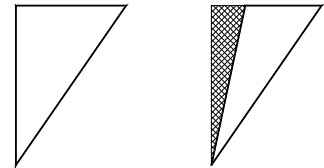


Figure 2 - Shear Lock

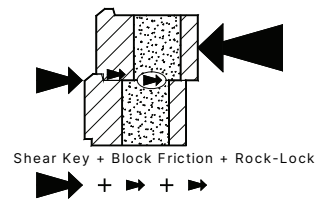


Figure 3 - Filtration

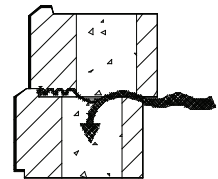


Figure 4 - Self Draining

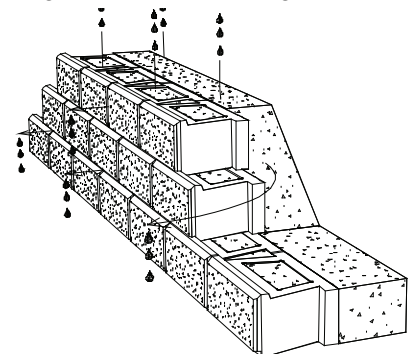
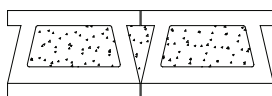
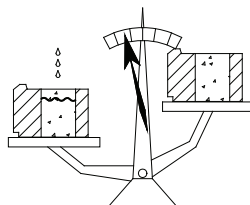


Figure 5

Closed Cell Configuration

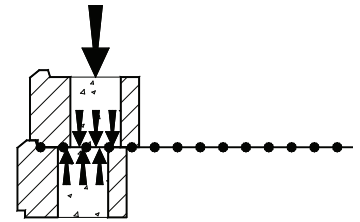


Water Weight



- Aggregate is not only used to fill the cores during construction. It is also compacted to provide an additional lock between the wall units. This positive continuous rock-lock connection adds greatly to the ability for the wall to lock on to the grid and allow the Allan Block, geogrid and reinforced soil to work as a composite mass. This continuous positive connection is superior to any point loaded pin system (Figure 6).
- The additional surface area on the inside of the core allows for faster drying of saturated block. This is critical to eliminate freeze thaw durability concerns. Without the presence of water, freeze thaw cycles have no affect on concrete (Figure 7).
- The hollow core design provides for efficiencies in production, transportation and installation. This translates into a better quality product and installation for the same price.

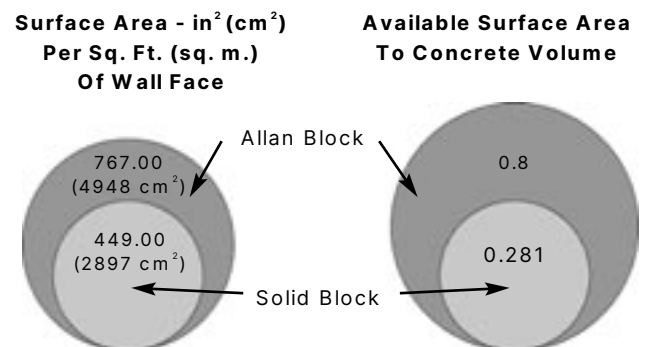
Figure 6 - Rock Lock



Allan Block has the best track record for structural stability of all modular block wall products.

- The built in design features of Allan Block allow for the safe and effective construction of taller gravity walls, when compared with other modular block systems. When reinforcement is required, the ability to include a built-in batter reduces the amount of reinforcement required providing a more cost effective solution for the site.
- Allan Block has zero documented wall failures attributed to product design.
- Allan Block is the product which most closely simulates how high shear strength soils interact and hold their form. High shear strength soils, sand and gravel, possess three important characteristics. First, when a soils mass is loaded the internal ability of the soils to resist shear is hard to overcome. Secondly, soils of this type drain very well. And last, the open space configuration within high shear strength soils allows paths for frost prism to form thereby reducing the pressure within the soil mass.

Figure 7



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