ALLAN BLOCK
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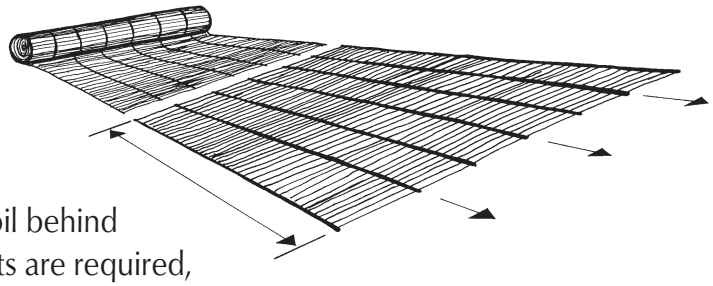
How Does Geogrid Work With Allan Block?

Retaining wall block can be used to construct walls that retain, or prevent the movement of the soil. The maximum height these walls can be built without the use of reinforcement is dependent on three primary conditions:

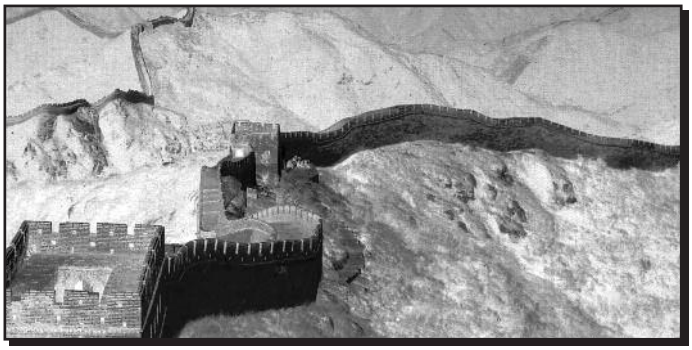
- Size of the block
- Existing soil composition
- Set back of the retaining wall.

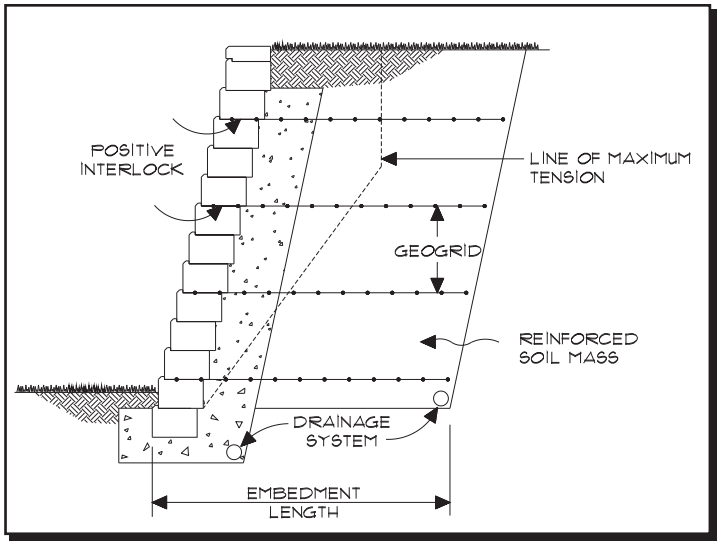


Walls that rely solely on their weight to retain the soil behind them are called *gravity walls*. When taller wall heights are required, or certain site conditions exist such as surcharges or slopes above the wall, a *reinforced wall* must be constructed.

One method of reinforcing an Allan Block retaining wall is to use *geogrid*. Geogrids are flexible synthetic meshes, typically produced from plastics or woven polyesters. These products are used to create a reinforced coherent mass behind the retaining wall by stabilizing the soil. Soil reinforcement dates back thousands of years. Ancient engineers understood the value of adding branches behind retaining walls and compacting the soil around the branches to increase soil stability. Examples of early reinforced structures include the Ziggurats of Babylonia and the great wall of China.

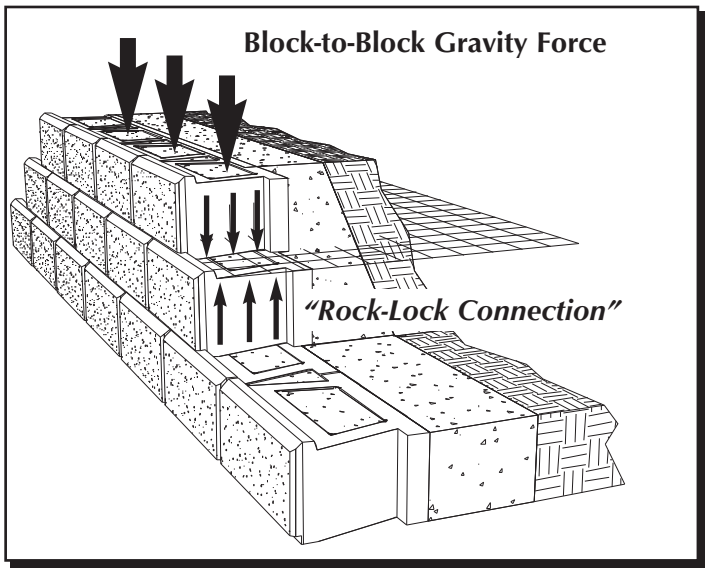
Stabilizing soil with geogrids is a process that locks a mass of soil together by adding layers of geogrid reinforcement. The number of layers and the size of the reinforced soil mass are determined by several factors including:





- Height of the wall
- Type of soil mass being retained
- Drainage patterns and
- Loads or surcharges above the wall structure.

How Geogrid Works With Allan Block Con't.



As layers of geogrids are positioned within the soil mass and soil is compacted around them the internal strength of the soil increases.

Allan Block's unique combination of a hollow core block and interlocking front lip provides important advantages when constructing geogrid *reinforced walls*. The geogird in a reinforced Allan Block wall is locked in place by a frictional force we call the *"Rock-Lock Connection"*. Geogrid layers installed between courses of AB block are held in place by the gravity force of the block-to-block contact and more importantly, by the gripping force created by the infill material in the block cores. The infill material interlocks with the geogrid providing superior resistance to pullout vs. other "pin-connection" retaining wall systems. With Allan Block, a uniform friction is created between the geogrid, and the infill materials, both within the block cores and in the reinforced soil mass. This *"Rock-Lock Connection"* prevents the movement of the Allan Block wall away from the reinforced mass.

Some designers are suggesting the need for a positive, mechanical connection of the geogrid to the block. This is unnecessary for two reasons. First, the grid is not a "tie back" holding up the wall face. That's not how the system works. Secondly, the block and soil are both locked in place by friction with the geogrid. In a properly designed retaining wall, the soil and block can not move independently of each other since they are one coherent mass.

With 30 million square feet (2.8 million square meters) of retaining walls installed, and not one case of the AB wall pulling away from the reinforced soil mass, we have solid assurance that the Allan Block product and design methods work. For more information on this topic or help in answering problems on your job site contact the AB Engineering department at 800-899-5309.


Geogrid Installation

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The information shown here is for use with Allan Block products only.