

Building a wall with fence, guard rail and geogrid

A wall exceeding two feet (600 mm) requires the security of a fence or railing along its perimeter. How to build a fenced wall with geogrid is demonstrated in the next pages.

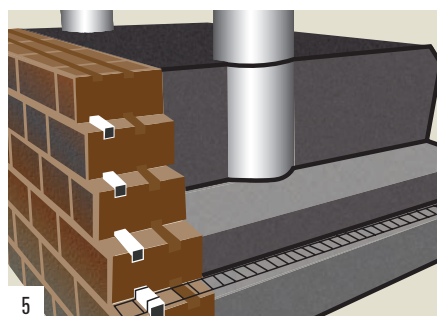
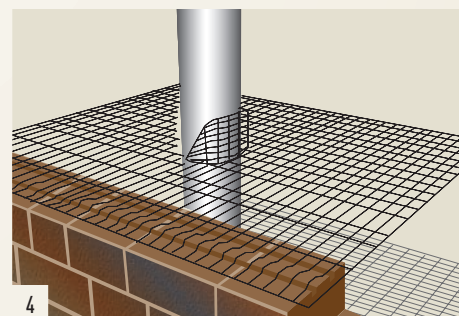
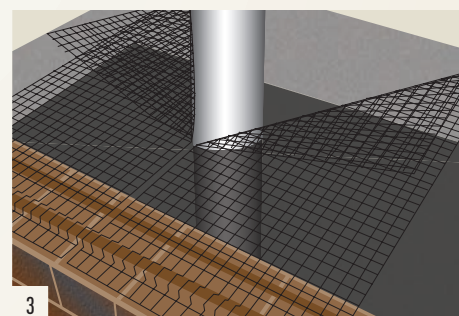
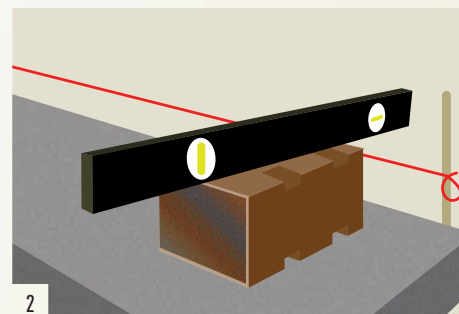
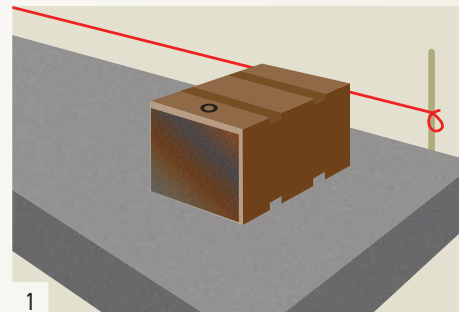
Sonotubes must be used to anchor the fence posts solidly enough to resist strong wind pressure.

Depth of the sonotubes will vary between three to four feet depending on whether the fence is made of aluminum, wood or vinyl with open spaces or not.

Follow steps 1 to 4 in the installation guide: **Building a retaining wall (with geogrid)**

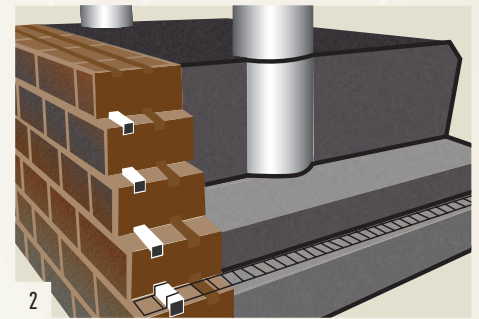
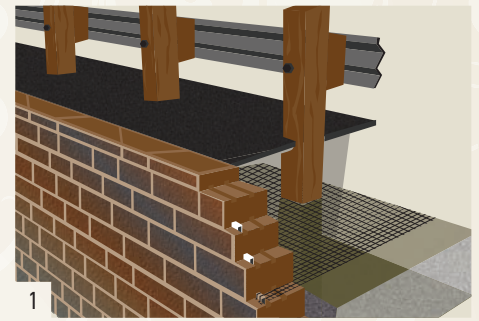
THE FIRST BLOCK

- 1 Installing the first block of the first course is crucially important because it will determine the wall's final aspect. A string line stretched behind the wall will allow you to align the blocks in a continuous and integrated fashion.
- 2 Each and every block must be level in all directions.
- 3 Begin installation of the sonotubes. Take into account the set-back of each block. It's a good idea to always have a cushion of 18" (450 mm) behind the last course of blocks.
- 4 Sonotube length should have a minimum of 4' long overall to provide 2' in the soil and 2' above ground level behind the wall. The total length will vary with the total height of the wall. Before cutting the geogrid, fill in and level the area behind the wall with 3/4" net stone. Cut the geogrid perpendicularly into two panels at the center of the sonotube. Line up the panels on the sonotube's other side. Make sure they are stretched and well anchored in the front with an extra course of blocks and in the back by spikes in the ground.
- 5 Fold the geogrid along the sonotube to eliminate any tension on the geogrid in this area. Compact manually with 3/4" (20 mm) net stone and repeat this step to the desired height. Ensure block surfaces are clear of any debris. Use a concrete adhesive to glue the coping stones, and fold the geotextile membrane back towards the wall. Cut the geotextile around the sonotubes. You can then install the fence posts and stabilize them by pouring the concrete mix fence or guard rail and into the sonotubes.
- 6 The final step is to install the fence or guard rail and finish the earthwork. All construction sites must have a slope to drain all surface water. Always pay special attention to the water running from a roof, gutter, paved surface and the topography of the natural landscape. For all other applications, whether concrete pavers, poured concrete or asphalt, do not compact less than 3' (1 meter) from the wall.



Guard rail Recommendations

- 1 Geogrid will be an integral part of any wall constructed adjacent to a road or parking lot. We recommend that the guard rail be installed a minimum of 3' (1 meter) behind the walls when it is not reinforced with geogrid and 5' (1.5 meters) when reinforced with geogrid.
- 2 We also suggest that posts or sonotubes, depending on local road department recommendation, be stabilized with 3/4" (20 mm) stone that was compacted manually around the periphery during the wall's construction.



Building a multi-level wall

A multi-level wall encompasses the same basic structures described in steps 1 to 4 of the **Building a Retaining Wall section**.

Multi-level walls respond to different needs: reducing lateral loads, achieving respectable heights, providing a more interesting view, etc.

- 1 As a general rule, in the construction of multi-level walls, it is recommended to have an equivalent distance of twice the height of the bottom wall before building the second level wall and always take into consideration that 10% of the total value of the wall be buried below ground level.
- 2 Using geogrid, walls can be higher, more impressive and with levels varying both in number and depth. We recommend that an engineer check usage, design and soil resistance, as well as overall stability of the slope or embankment.

Geogrid reinforced walls can be designed to support upper terraces that are in close proximity to the back of the wall. Generally, the further the upper walls are offset from the top of the lower wall, the less expensive the design will be.

Wherever possible, the lower wall should be higher than the upper wall.

