

General Advice

These instructions should be read in conjunction with the contract specification and drawings. They are intended to provide guidance in normal installation situations and are addressed to the installer on site. If there are any questions related to the design, unusual installation challenges, or any doubt, consult the ABG Technical Design Team for further advice.

The installation must be conducted by a qualified and experienced contractor, following the ABG construction drawings and all instructions outlined in the Design document. Read all instructions before commencing construction.

Description

ABG Webwall is an economical, flexible earth retaining wall system consisting of layers of cellular polymer panels with a green facing at the front (**Fig. 1**). Once the alignment and foundation depth are established (**Fig. 2**), the Webwall panels are expanded, filled with site-won soil or crushed stone and stacked to the required height. The angle of the face of the wall is determined by the amount each layer is stepped back and a natural vegetated face is created by planting the front of the exposed cells.

ABG Webwall may be a Gravity wall (unreinforced and generally limited to retained heights of approximately 2.5 – 3.0 metres) or a Reinforced wall, using geogrids to achieve greater heights.

Materials required (Fig. 3)

- **Webwall panels** 250mm height x 500mm cell diameter (nominal) x 1.2mm wall thickness. Expanded panel type sizes: **A (4m x 1m)**, **B (4m x 1.5 m)** or **C (4m x 2m)**. Supplied on a pallet in 6m x 0.15m x 0.25m coils, easy to man-handle
- **Pins** (500mm & 750mm x 12mm Ø), 11 per panel
- **Fildrain** (drainage geocomposite)
- **Abgrid** (geogrid, where required)
- **Chutes** (to hold open and fill front cells—not supplied)
- **Planting** (as specified – not supplied, the ABG Planting Options guide can be consulted if required)

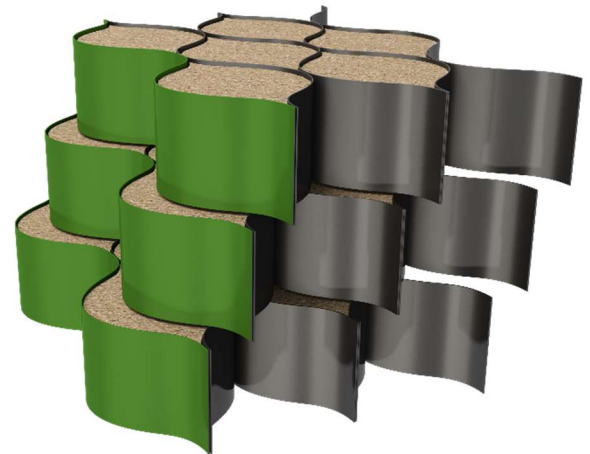


Fig. 1: Webwall



Fig. 2: Preparing site for Webwall installation



Fig. 3: Materials required

Equipment Required

- Safety knife
- Shovels
- String line
- Lump hammer
- Tape Measure
- Small excavator
- Laser and spirit levels
- Wacker plate, or single drum vibrating roller ($\leq 450\text{kg}$ weight)

Site Preparation and Setting Out

Step 1

Set out the alignment of the wall and excavate to a firm base-level, at least 0.5m wider than the base layer, or as required to create a safe work environment (**Fig. 4**). The construction Drawings will specify Type A, B or C panels. If required by the design, place the geogrid and / or geotextile at the base of the excavation. The base of the excavation should be perfectly flat, or with a nominal slope down towards the back of the wall. The footing is typically 0.5m below ground level, but specific details will be shown in the construction Drawings.

Step 2

Insert pins at the beginning and end of the section of wall you are working on. Run a string line between the two, marking out the front of the wall^{NOTE 1}. Place and position the Webwall panels in line with the string line by placing a Chute in each of the front green cells and backfill with selected granular fill or as advised in the construction drawing. (**Fig. 5**).

Step 3

Extend the Webwall panels from front to rear to the design width. Secure by driving 500mm long pins into the rear cells along the length of the panel, ensuring that the pins are flush with the top of the panel. The panel should now be fully expanded and supported by pins (**Fig. 6**).

Step 4

Ensure the panel is level with zero falls or a nominal slope down towards the back of the wall. Repeat the process for adjacent panels, ensuring that the panels are butted together with additional pins at each end (**Fig. 6**).



Fig. 4: Excavate a firm level footing



Fig. 5: Use of Chute to backfill front cells

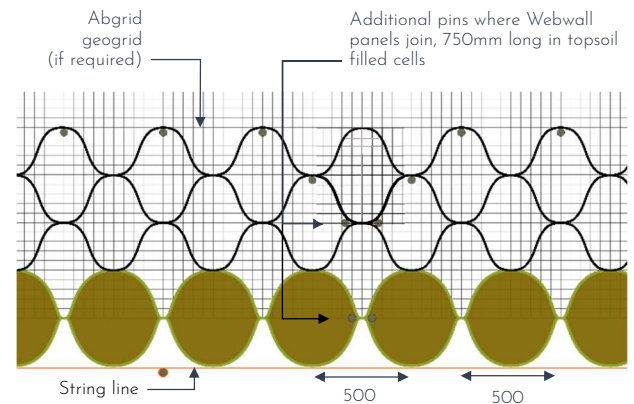


Fig. 6: Webwall Set Out

Back Filling and Compaction

Step 1

Fill the entire first layer of base panels with selected granular fill such as DTp Type 1, or as specified by the Drawings to create a stable platform. Overfill the panels by approx. 50mm (Fig. 7).



Fig. 7: Overfill base panels with granular fill

Step 2

Compact the panels with a single drum vibrating roller ($\leq 450\text{kg}$ weight) or a wacker plate to create a level surface flush with the top of the panel^{NOTE 2} (Fig. 8).



Fig. 8: Compact fill with roller or wacker plate

Step 3

Backfill behind the panels with the soil as specified in the design. Compact the soil behind the panels in accordance with either the site-wide earthworks compaction specification, or as specified in the design.

Step 4

There may be multiple layers of panels below ground level. Repeat the process until all buried panels have been installed, ensuring that cells are aligned correctly and set back as per the design. In particular, ensure that the cells are aligned vertically (Fig. 9).

Step 5

Ensure that the wall foundation is completely buried below ground level, as per the design, before constructing the wall above.

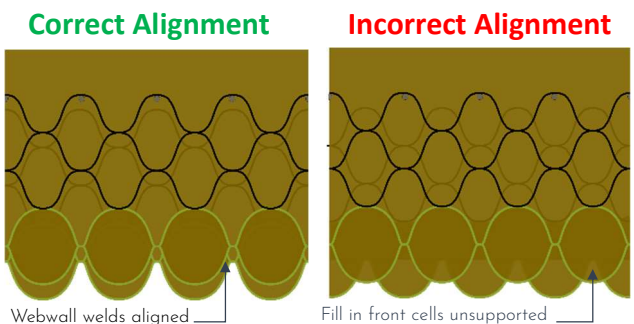


Fig. 9: Vertical alignment of Webwall panels

Wall Construction

Step 1

Install geocomposite drainage as per the design (Fig. 10) and, if required, geogrid.

Step 2

Lay out each Webwall panel using a Chute as described earlier to backfill with topsoil. Remove the chutes and top up the cells as required to create a level surface that is flush with the top of the panel. Expand the rear black panels and secure with 500mm long pins as described earlier (Fig. 11).



Fig. 10: Drainage and geogrid (where required)

Step 3

The rear cells should be backfilled as per the design^{NOTE 2} and compacted with a vibrating roller or wacker plate as described earlier. Backfill behind the rear cells simultaneously as described earlier (Fig. 12).

Step 4

Repeat the process for adjacent panels ensuring that the panels are butted together, with additional pins at each end. In the front cells filled with topsoil, these additional pins should be 750mm long (Fig. 6)

Step 5

Repeat Steps 2-4. When laying new panels on each lift / new layer, each individual cell should line up vertically (see Fig. 9), but to prevent the horizontal panel edges lining up vertically, place new panels in a 'stretcher bond' fashion, with at least a single cell overlap with each lift (Fig. 13). Ensure that panels are level, and set back is as per the design^{NOTE 3}, until the design height is reached (Fig. 14).

Step 6

Plant / seed front cells as specified in the customer's project specifications. Selection of planting / seeding is the responsibility of the customer^{NOTE 4}.

Notes

1. Applies to straight **Webwall** sections only. When the **Webwall** is curved, the expansion and spacing of the cells will vary (Fig. 15). When the Webwall design includes a right-angle corner (external or internal), specific corner panels will be required. If corners or curves are part of the wall design, ABG should be contacted to provide addendum installation instructions to aid with setting out and construction.
2. Larger compaction equipment may be suitable behind the wall away from the **Webwall** panels where approved by a suitably qualified geotechnical professional. For more information on recommended backfill and compaction, please see the ABG Technical Note "Webwall Panel Backfill". Contact the designer if the typical backfill and / or compaction has not been specified in the construction drawings, or varies from that specified.



Fig. 11: First layer of Wall Construction ready for fill



Fig. 12: Compact fill with roller or wacker plate

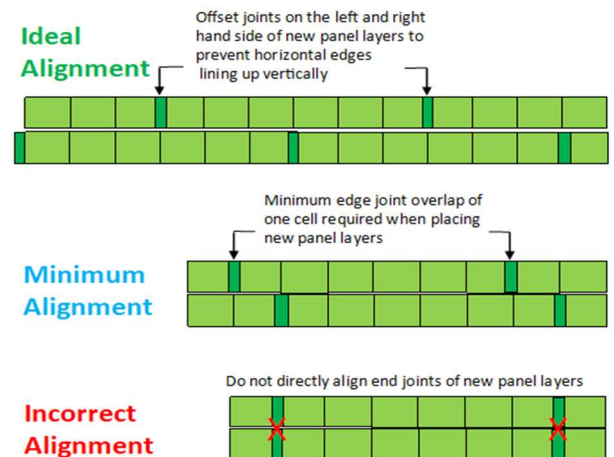


Fig. 13: Webwall panel joint alignment for new layers



Fig. 14: Repeat process until design height is reached

Notes (cont.)

- It is recommended that panels are stepped back by a further amount during construction, in addition to the specified step back. This is because the panel has a tendency to expand or creep forward when the retained fill is being compacted within and behind the panels. The amount of extra step-back depends on site-specific conditions but generally an extra 25mm is a good starting point. The step back should be monitored post-compaction and the next panel position should be adjusted accordingly.
- The establishment of vegetation is important for prolonging the life of the exposed polymer face, as the plants provide shade from the sun's ultra-violet rays. **Webwalls** will require monitoring and maintenance over time to ensure that adequate coverage is provided by the plants (Fig. 16).

Terms & Conditions

- The Design Document provided by ABG should be consulted to understand all project specific design notes / caveats, exclusions, roles and the responsibility of all parties.
- The construction must be in accordance with the design provided. Unless prior notice is given to ABG, any alteration will invalidate the design.
- The contractor must assess all the risks associated with working from height, both for machinery and the operatives. This is not a method statement, please refer to site specific safety guidance.

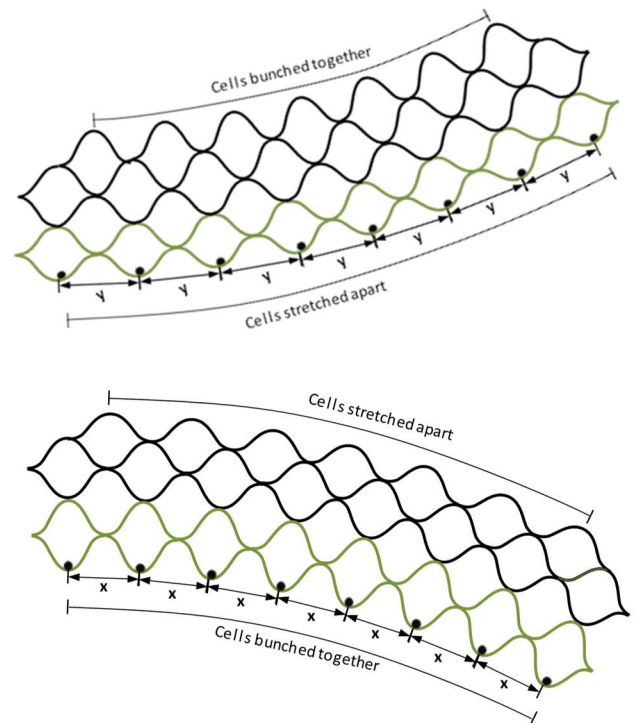


Fig. 15: Webwall external & internal curve spacings



Fig. 16: Completed Webwall before and after planting. Planting required to provide protection against UV degradation.