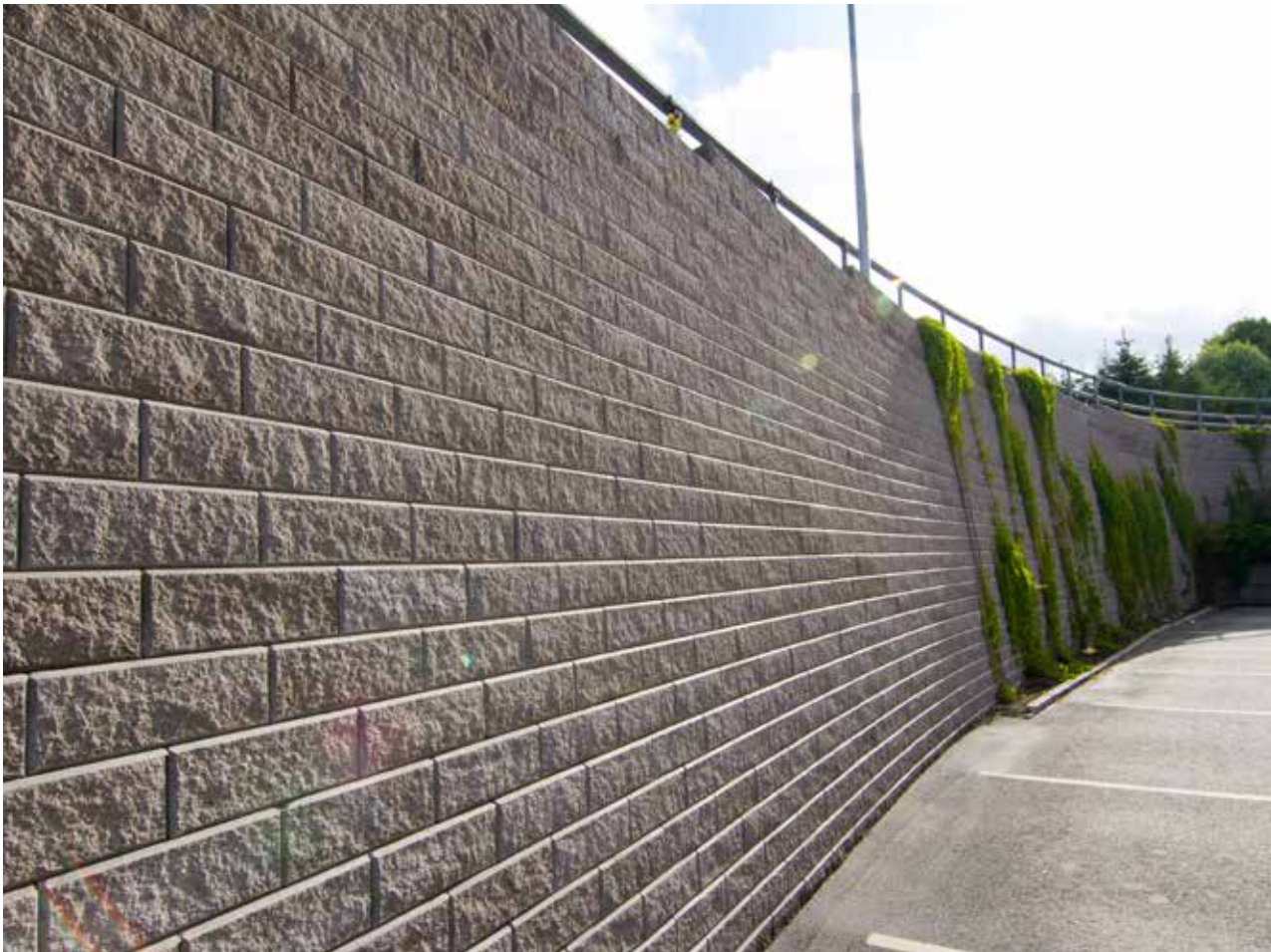


USER INSTRUCTIONS



Megawall Projekt - reaching undreamt heights

Megawall is a complete, reinforced-soil retaining wall system. Thanks to the many variants, it is easy to follow nature's contours – or to make your own. The blockstones come with a beautiful finish that resembles natural stone. Megawall is available in two formats – Garden (for straight walls) and Projekt (4° rake). Projekt is designed for heights up to 12 metres with strong anchoring using geomesh and connectors. The choice is yours!



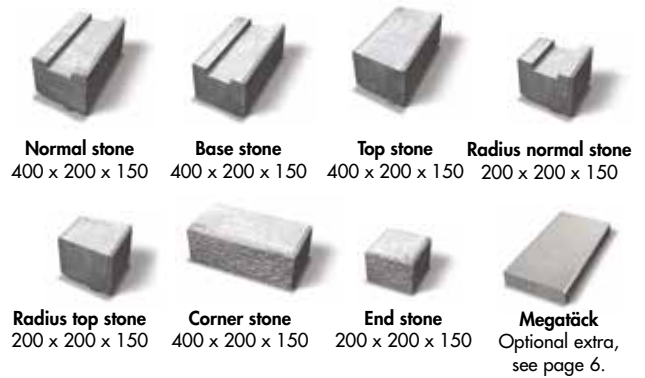
USER INSTRUCTIONS

Megawall Projekt

Art no 25600.. etc

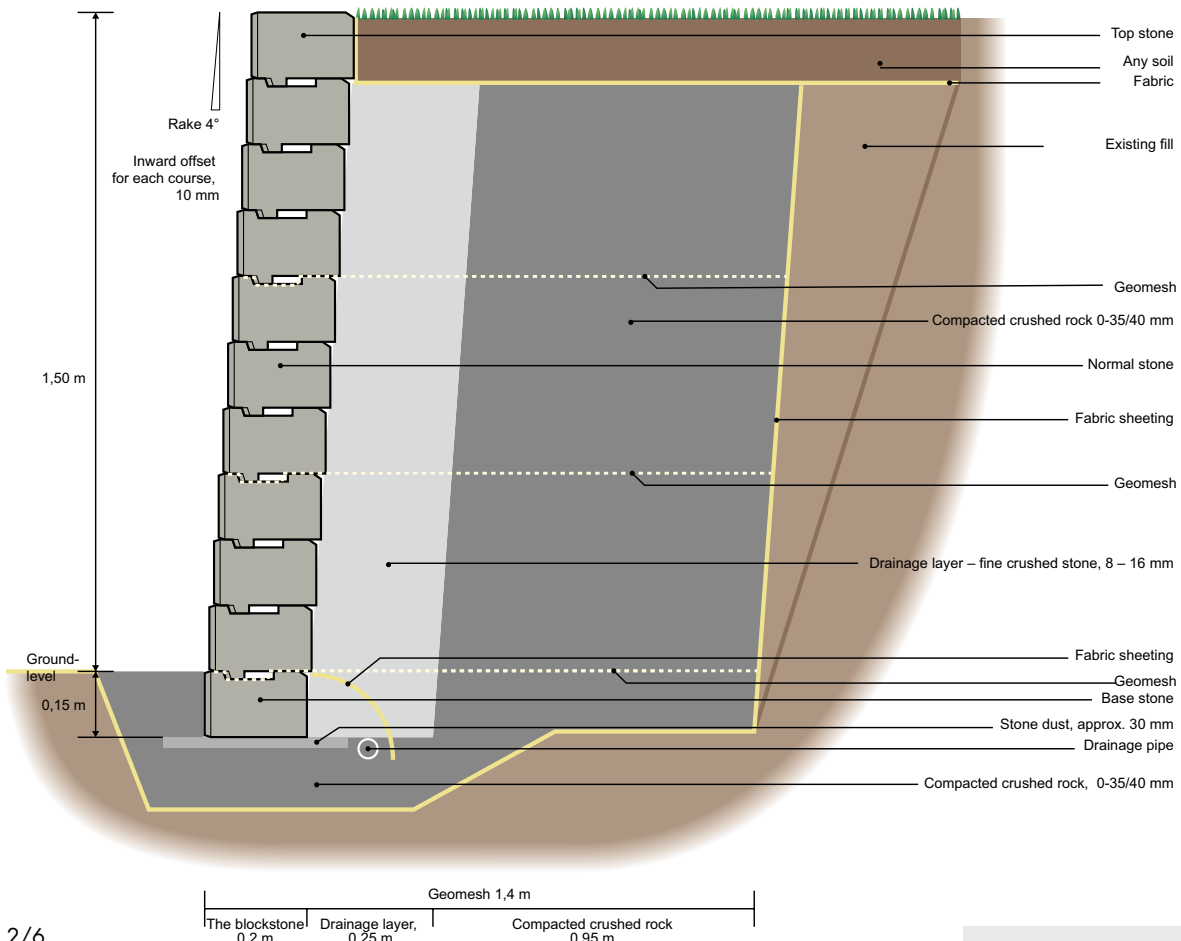
Bender Megawall Projekt is designed for strong anchoring using geomesh (Tensar) and connectors. You can build straight or curved retaining walls up to 12 metres high. As a rule, no mesh reinforcement is required for low walls up to 0.8 metres high. However, where ground conditions are variable and difficult, geomesh is recommended. Walls automatically slope 4 degrees inwards.

Important! If the ground behind the wall slopes or is subject to loads (e.g. vehicles of various types), geomesh must always be used. For geomesh dimensioning, contact Benders' customer support.



Wall glueing. The top course, as well as corners, starts and ends, must always be glued. Rec. adhesive, PL400, PU700 or similar.

Fig. 1: Cross section, walls up to 1.5 m. Geomesh positioning and length with Megawall Projekt. Use one connector per blockstone.

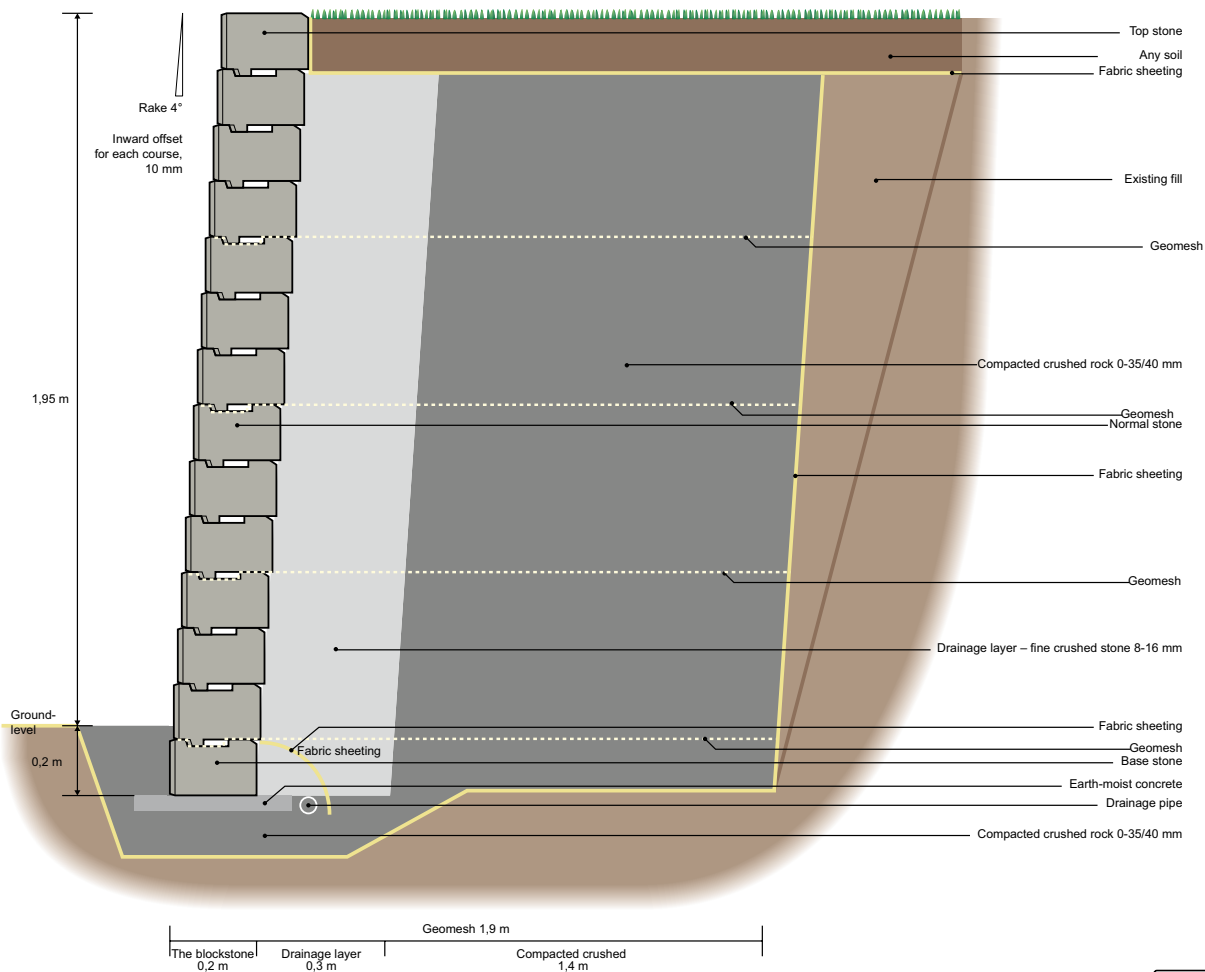


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Fig. 2: Cross section, walls 1.5 m to 2 m high. Geomesh positioning and length with Megawall Projekt.



Walls up to 1.5 m

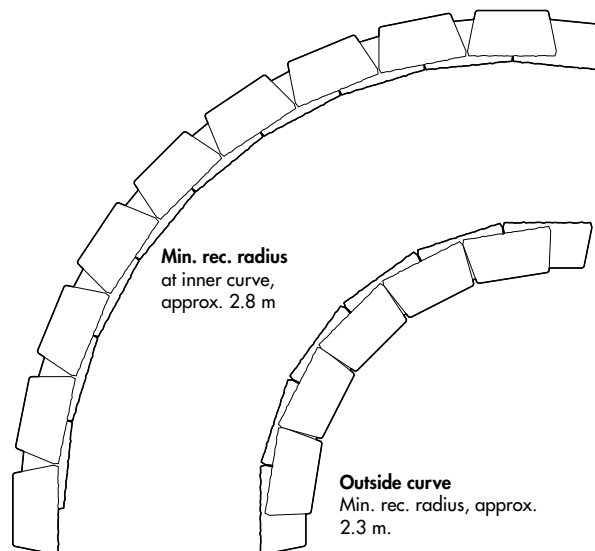
For each blockstone, 1 connector must be fitted in the geomesh (see fig. 1).

Walls of 1.5 m to 2 m

Here, the connectors must be fitted linked together (see fig. 2).

Walls above 2 m

Any wall above 2 metres must have its own drawing. Contact us for a free “application proposal”.



USER INSTRUCTIONS

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1. For the wall's foundations, excavate a trench that is about 40 cm deep and at least 60 cm wide. Lay fabric sheeting in the trench. Fill with an at least 20 cm thick layer of crushed rock (grade 0 – 35/40 mm). Compact well using a plate compactor. Level out with an about 3 cm thick layer of a finer grade of gravel (stone dust) for laying of the wall's first course. About 10% of total wall height must be below the finished ground level. When you are building a wall higher than 1.5 m (see fig. 2), the first course must be laid on an around 10 cm thick layer of earth-moist concrete. This latter is to be laid on a well-compacted bed of crushed rock (grade 0 – 35/40 mm). See figs. 1 and 2.

2. Lay the first course of Bender Megawall base stones about 20 cm from the back edge of the foundation bed. Fill with a drainage layer of 8 – 16 mm fine crushed stone (or similar) behind the wall to a width of 0.15 x the wall's height (but no less than 15 cm). Also backfill (to the desired ground level) the space at the front of the blockstones. Use a spirit level to check that the blockstones are level. NB! Use a brush to keep everything thoroughly clean between the laying of courses. To ensure perpendicularity when building a straight wall, stretch a string down the back of the blockstones. Where a drainage pipe is used, this must be located behind the wall and have an even drop that leads water away from the wall. See figs. 1 and 2.

3. With a half-stone offset, lay the next course of Bender Megawall Projekt Normalsten (normal stones). A Bender Megawall Radiesten (radius stone) can be used as a half stone. Alternatively, cut a full stone. Be sure to pull the stones towards the wall's front so that the tongue and groove are in full contact with each other. From time to time, use a template or ruler to check that the bond is not being displaced between the blockstones. Lay the second course. Compacting as you go, continue to fill with drainage material and backfill. For the backfill up the slope, use the same material as for the foundations. Compact. Use a light plate compactor, operating weight 80 – 125 kg. Use it carefully and no closer to the wall than around 60 cm. With walls over 2 metres high, a heavier plate compactor can be used at a distance of around 1.5 metres from the wall. If you backfill with soil at the top course, lay fabric sheeting tight to the blockstones and out along the drainage and backfill materials. This is to avoid material shifting and discolouration of the wall. See figs. 1 and 2.

4. When building a wall using geomesh and connectors, the first mesh must always be positioned between the first and second courses (see figs. 1 and 2). See fig. 3 for fitting of geomesh and connector. Cut the mesh as shown in fig. 4. Tension the geomesh well and fill with materials so that this is maintained. Continue with a number of courses of blockstones up to the next geomesh level as per figs. 1 and 2. Compact the backfill continuously.

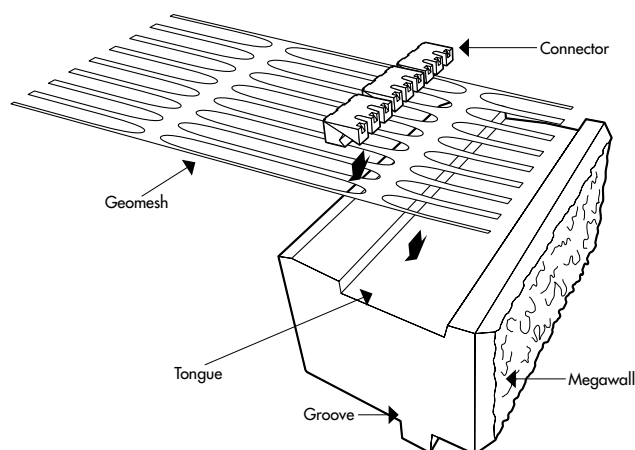


Fig. 3: Megawall used with geomesh and connectors gives a matchlessly strong structure.

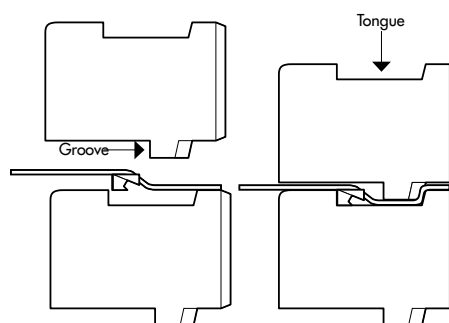


Fig. 4: Fitting of geomesh and connector.

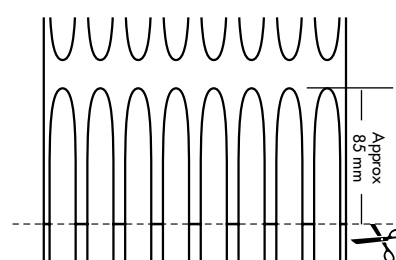


Fig. 5: Bender Geonät (geomesh).



USER INSTRUCTIONS

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Bender Megawall Radiesten (radius stone)

Bender Megawall Radiesten can be used as a half stone and when you want a tighter curve than is possible with Megawall Normalsten (normal stone). Megawall Radiesten is stocked both as Megawall Radie Normalsten (radius normal stone) and Megawall Radie Toppsten (radius top stone).

Bender Megawall Radiesten is suitable for both Megawall Projekt and Megawall Garden.

When using radius stones

Adjust the radius stones to the slope or line of Megawall Projekt or Megawall Garden. Radius stones must always be glued to the underlying course. Use Benders' concrete adhesive or similar. Where, in the building of high walls, geomesh and connectors are used, these must be connected to radius stones at the same section levels as the rest of the wall.

Cut and adapt the geomesh to the wall's radius. The connectors must be fitted interlinked to the radius stones. To ensure the correct bond pattern, length must also be adapted to 2 Megawall normal stones every other course. See figure 6 and the table below.

Finish the wall with Bender Megawall Toppsten (top stone). Use Benders' concrete glue to fix this in place.

Bender Megawall Radiesten can also be used to build circles, tree surrounds, planting boxes, small retaining walls, etc.

Fig. 6: Example 1 shows a 45° elbow with a radius of 900 mm. This requires 4 radius stones for the first course (see table) and they must be offset a half radius stone every course.

Example 2 shows a 90° elbow with a radius of 900 mm. This requires 7 radius stones for the first course (see table) and they must be offset a half radius stone every course.

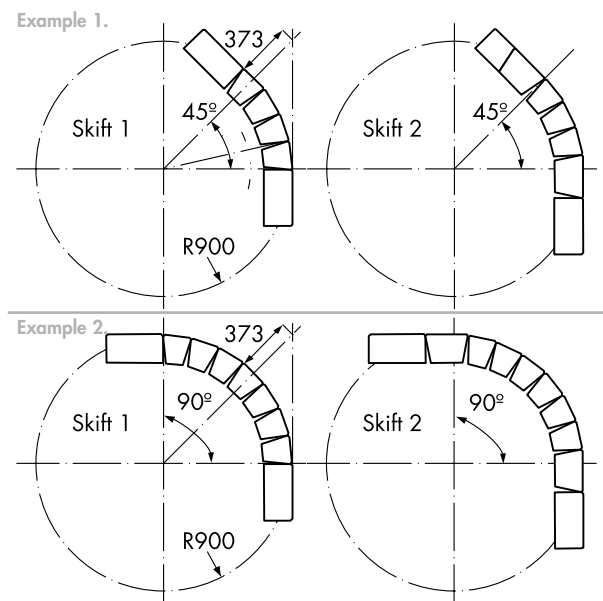


Fig. 7: NB! When cutting stones, you must use safety goggles, hearing protection and respiratory protection.



Megawall Radiesten requirements table

Circle, mm	Approx. radius 900	Approx. radius 1500	Approx. radius 2000	Approx. radius 2500	Approx. radius 3000
Angle change per stone	~ 13°	~ 7,5°	~ 5,6°	~ 4,5°	~ 4°
No. of stones in 30° elbow	3	4	5	6	8
Example 1, fig 6. No. of stones in 45° elbow	4	6	8	10	12
No. of stones in 60° elbow	5	8	11	13	16
Example 2, fig 6. No. of stones in 90° elbow	7	12	16	20	24

USER INSTRUCTIONS

Megawall Projekt

Art no 25600.. etc



Bender Megawall Hörnsten (corner stone)

Megawall Hörnsten is used for external 90° corners and is laid, course for course, in a bond with normal stones that have had half the groove knocked away (see fig. 8). Megawall Hörnsten is also used for the gradual stepping of walls.

Additionally, Megawall Hörnsten can be used for building large door posts. These are 60 cm wide and up to 2.5 m high.

For technical production reasons, our corner stones do not have a bevel on the short side. If a bevel is required, it can easily be made using a cutting disc. Our corner stones are also made a mm lower than normal stones. This is to provide space for the glue and to allow for vertical adjustment of the corner.

When constructing an internal 90° corner, wall building must start at the angle, with each course pulled around 1 cm into the corner (see fig. 9). After the Megawall base stone, a Megawall normal stone with half the groove knocked away is used. This corner is also to be secured using Benders' concrete glue or similar. If anything is unclear, contact Benders' customer support.

Bender Megawall Slutsten (end stone)

Megawall Slutsten is used at straight terminations of walls, etc. Glue the end stones in place.

Bender Megatäck

As an optional extra, there is now Bender Megatäck (see fig. 10), an exclusive coping stone for Megawall structures. It has the same rough-hewn face and side bevelling as the wall. The top has a definite patina. User Benders' concrete glue to fit Bender Megatäck.

NB! The above details apply to stable foundation installation conditions. However, they are still only intended as guidelines. Further technical advice may be needed in respect of geological variations in site and ground conditions. Benders' information is free and is not to be regarded in the same way as, for example, an authoritative construction drawing. Nonetheless, the information is of great use in all relevant building projects.

Fig. 8: External 90° corner.

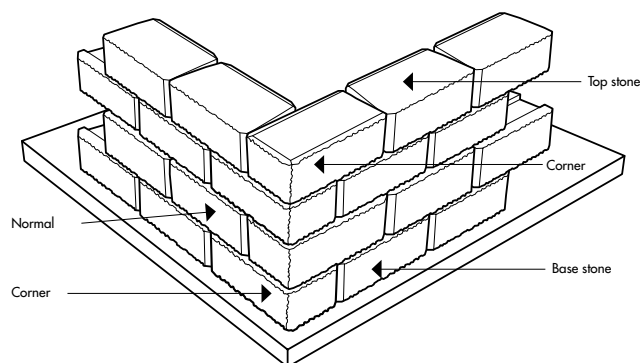


Fig. 9: External 90° corner.

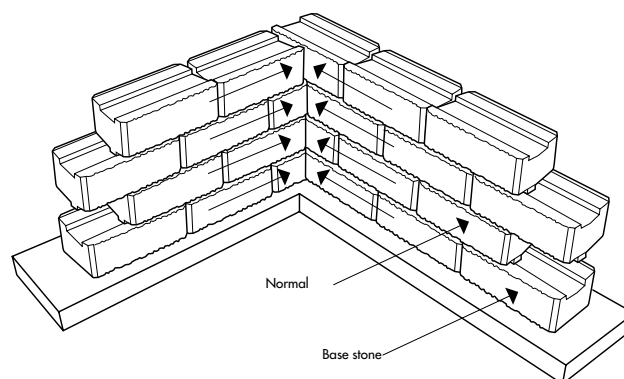


Fig. 10: Bender Megatäck.

