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Building a Straight Wall When Working Up a Slope

Use this helpful information if your project requires a wall to be built up a slope and you would like to keep the wall parallel to an existing feature such as a driveway, road, or sidewalk.

Take for example the picture shown on the right. This wall is an AB Ashlar Blend™ pattern wall from the AB Collection®, with an approximate setback of 6 degrees. The entire finished wall needed to be the same distance from the curb so the contractor could place the continuous 4 ft. (1.2 m) sidewalk parallel to both the curb and wall. If the wall was built without accounting for the block's setback, the wall would move away from the road approximately 0.8 in. (20 mm) per step-up as it continued up the slope. Depending on the slope of the hill, the wall could be a considerable distance away from the driveway and sidewalk by the time it reached the top of the slope. See Figure 1 for an illustration of the effects of block setback. This tech sheet demonstrates two alternatives for creating a straight wall when building a retaining wall up a slope.

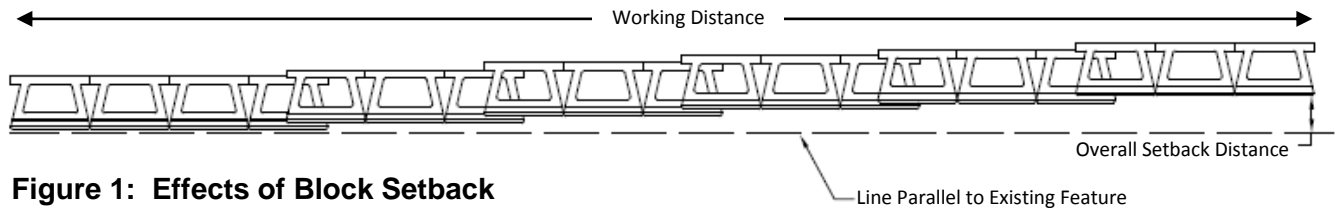


Figure 1: Effects of Block Setback

Table 1: Setback Chart

Setback by Collection	Change in Elevation (courses)				
	1	2	3	4	5
AB Stones (12°) only of the AB Collection	1 3/4 in	3 3/8 in	5 1/8 in	6 3/4 in	8 1/2 in
	43 mm	86 mm	130 mm	173 mm	216 mm
AB and AB Europa Collection (6°) (excluding AB Stones and AB Three)	0 7/8 in	1 5/8 in	2 1/2 in	3 3/8 in	4 1/4 in
	21 mm	43 mm	64 mm	85 mm	107 mm
AB Three (3°) only of the AB Collection	0 3/8 in	0 7/8 in	1 1/4 in	1 5/8 in	2 1/8 in
	11 mm	21 mm	32 mm	43 mm	53 mm

*Setback distance and setback angle are nominal dimensions. Stack 2 blocks onsite and measure the actual setback for your block.

Table 1 Example:

The example shown is an AB Ashlar Blend patterned wall using blocks from the AB Collection. For simplicity, define the working distance as a segment where the wall will change by 5 courses in elevation. (Actual site conditions will dictate the rise over a particular working distance.)

Using Table 1:

1. Find the row with AB Collection (6° block).
2. Find the column where the wall change by 5 courses in elevation.
3. Therefore, for every 5 courses of block, the wall will need to be adjusted to account for a setback of 4 1/4 in (107 mm).

Steps to build a straight wall from a series of angled wall segments:

1. Review the Gravity Wall Construction and/or the Reinforced Wall Construction sections of the *AB Commercial Retaining Wall Manual*.
2. Layout a line where you would like the wall. This will be referred to as the *Wall Line* and it should be parallel to the existing feature.
3. Establish your working distance and plan the number of step-ups that would occur within this area based on the grade change. The working distance can be defined as any convenient length of wall. For a wall being built on a steep hill, you may find a shorter working distance is easier, while a wall being built on a gentle slope can use a longer working distance. For every 8 in. (200 mm) of grade change, there will be a step up of 1 course of block.
4. Using Table 1, determine the overall setback that would occur based on your type of block and the number of step-ups within your working distance.

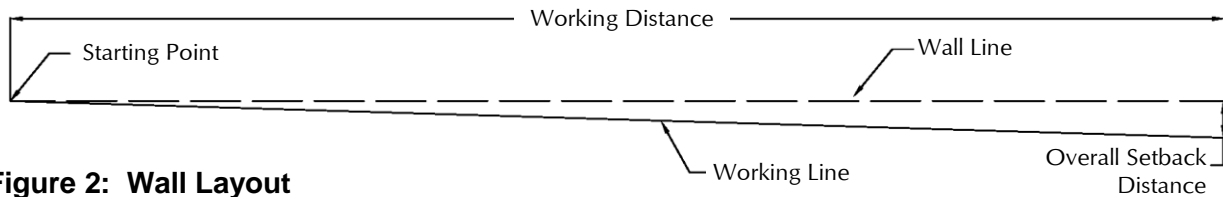


Figure 2: Wall Layout

5. At the end of your working distance measure from the *Wall Line* and mark the overall setback distance you determined in Step 3. Stretch a string line from the beginning of the working distance to the overall setback mark you just made. Figure 2 shows this line as your *Working Line*.
6. Start constructing your base course by measuring off the working line the distance shown in Table 1 for one block height. Figure 3 shows the base course construction. Going back to our example wall, using blocks from the AB Collection (6°), we would measure off the *working line* and place each block approximately 7/8 in. (21 mm) away from the *Working Line*.

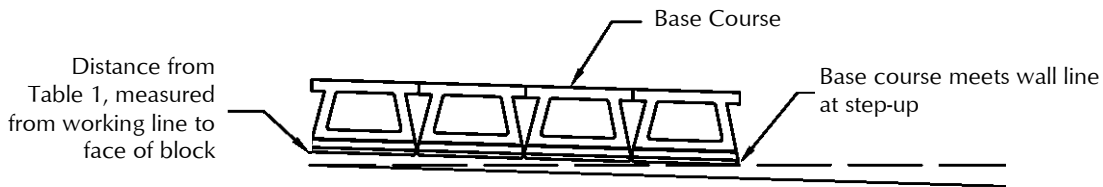


Figure 3: Base Course Construction

7. When your base course meets the *Wall Line*, it should be time for a step-up. Start constructing the second course as described in the *AB Commercial Retaining Wall Manual* on top of your compacted base. This course will be built using the setback shown for 2 block heights in Table 1. Referring to Figure 4, our example wall would be set back 1 5/8 inches (43 mm) from the *Working Line*.

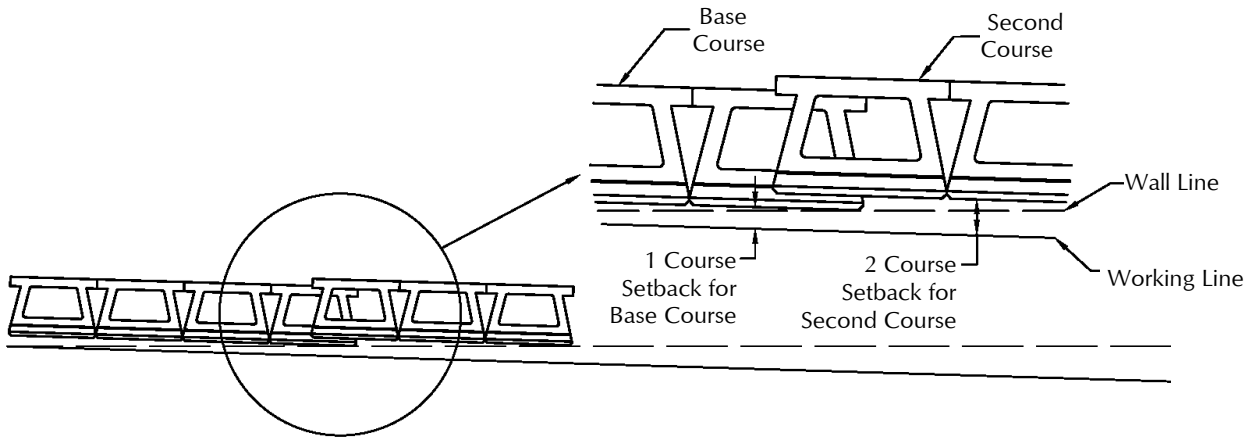


Figure 4: Installing the Second Course

8. Continue building the wall using Table 1 to determine each course's setback and using the *Working Line* for a reference until your wall is complete.

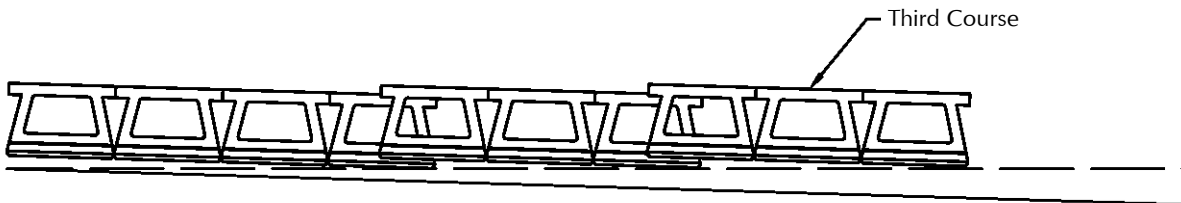


Figure 5: Installing the Third Course



Figure 6: Using Angled Segments to Build a Straight Wall

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Steps to build a straight wall by adding a kink to the wall:

1. Review the Gravity Wall Construction and/or the Reinforced Wall Construction sections of the *AB Commercial Retaining Wall Manual*.
2. Define your working line parallel to the existing feature you are following up the slope.
3. Construct the base course as shown in the *AB Commercial Retaining Wall Manual*.
4. Construct the second course as shown in the *AB Commercial Retaining Wall Manual*. When your second course reaches the end of the buried base course, add a kink in the wall as shown in Figure 7 to bring the wall back to the working line and parallel with your existing feature. Continue constructing the second course on top of the compacted base.
5. Construct the third course, softening the kink above the end of the base course, see Figure 8.
6. When your third course reaches the end of the buried second course, add another kink to bring the wall back to the working line and parallel with your existing feature.
7. Continue building the wall using this technique until the wall is complete.

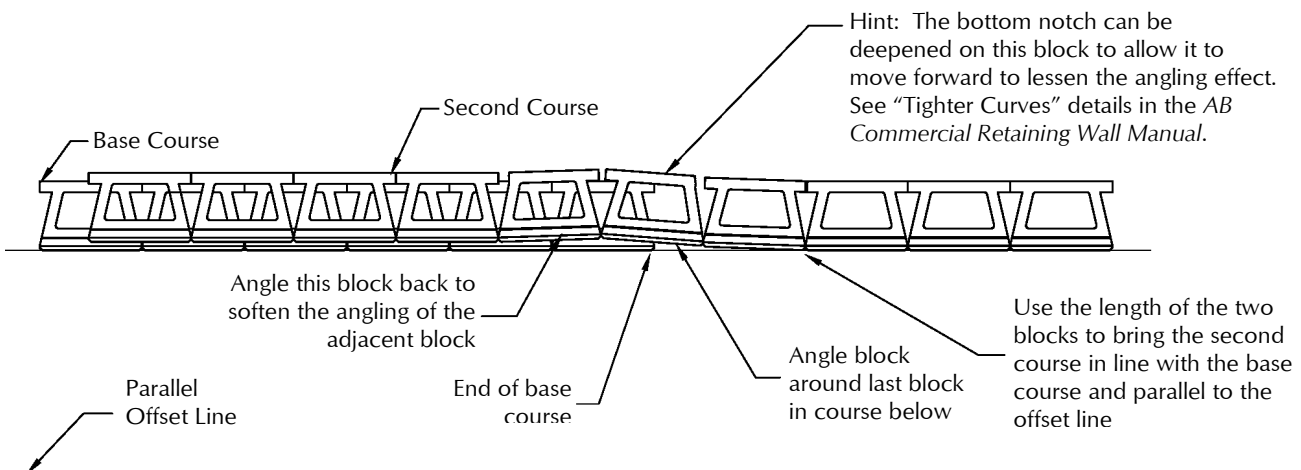


Figure 7: Using a Kink to Build a Straight Wall – Building the Second Course

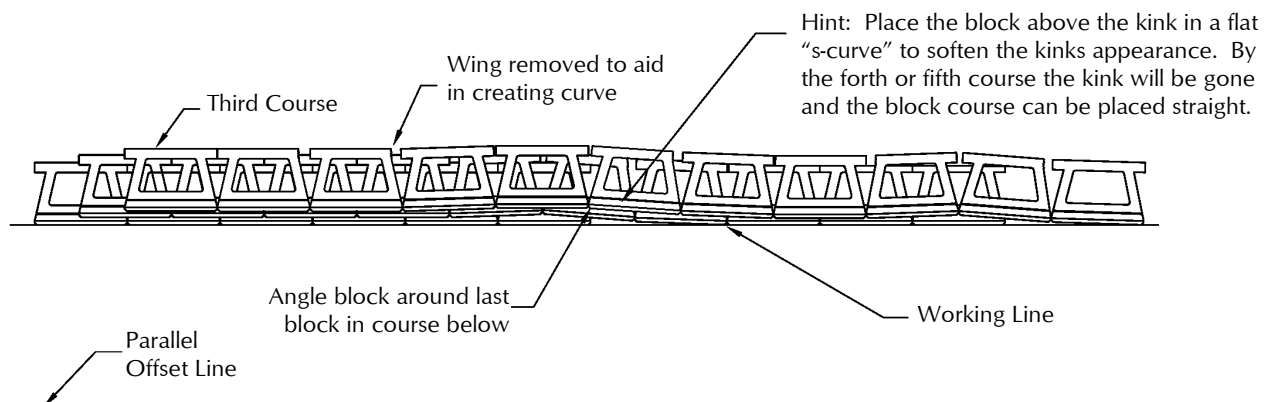


Figure 8: Using a Kink to Build a Straight Wall – Building the Third Course