

# Perpendicular Steps with Right Angle Corners

One of the unique benefits that sets Allan Block Retaining Wall Systems apart from other products and wall systems is the great variety of options available for designing and building steps into a retaining wall. Following is one example; perpendicular steps with right angle corners. For other examples, see your local Allan Block representative or call the Allan Block Corp. at 952-835-5309.

## BEFORE GETTING STARTED

**Time, Material And Equipment Requirements.** Building perpendicular steps with right angle corners is an option that requires the use of AB Corner Blocks (contact your local Allan Block producer to confirm availability) or miter cutting standard Allan Block units (see AB Tech Sheet # 296, Miter Cutting Outside Corners). In either case, a masonry saw equipped with a diamond tipped cutting blade will be necessary to produce the cuts required for a tight fitting set of steps. Stairway construction may require extra time for cutting and fitting blocks. For a quality job, allow yourself a little extra time for laying out and building your stairs.

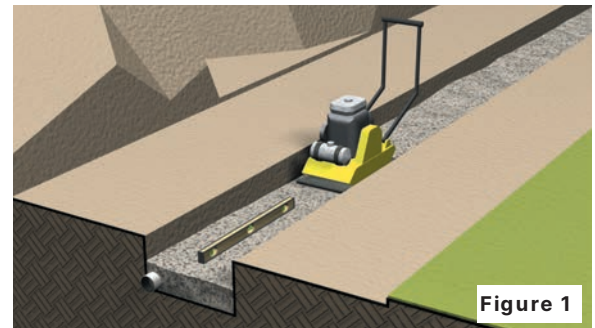
**Stair Tread Materials Make A Difference.** The following construction method uses AB Capstones as stair treads. Allan Block's patented front lip provides a built-in edging for a variety of tread materials including AB Capstones, landscape pavers, poured concrete, crushed rock, mulches and flagstones. Choose the material that best suits your stair application. If AB Capstones are used, careful planning of stair dimensions can reduce the amount of block cutting required at the job site. A stair tread width equal to the width of 2 or 3 AB Capstones works well for most stair applications.

**Setback Vs. Vertical Sides.** Allan Block's built-in setback automatically increases stair width with each successive course. To keep stairs vertical and eliminate the need to cut AB Capstones for widening stair treads, cut a deeper notch in the bottom of the return blocks and move them inward to align in a vertical position (Fig. 4, 5 and 6).

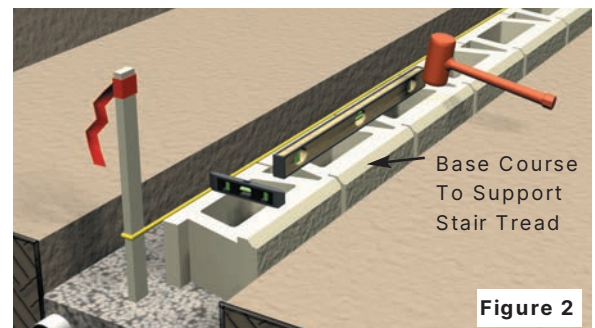
## Step 1: Base Course

- Excavate a 6 in. deep x 18 in. wide (15 cm x 45.7 cm) base trench at the location of your steps (Fig. 1).
- Place 4 in. (10.2 cm) of granular material in the trench and compact with a mechanical plate compactor (Fig. 1).
- Position Base Row of AB Blocks as shown and level them from side-to-side and front-to-back. (Fig. 2).
- Carefully place granular material in block cores and 6-12 in. (15-30 cm) behind blocks and compact to lock in position (Fig. 3).

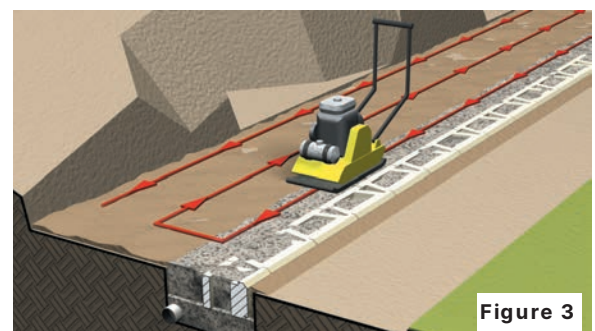
**NOTE: The height of this backfill material should be level with the top of the base row of blocks. This is where you will place the next steps's riser blocks.**



Excavate Base Trench Install and Compact Base Material



Install and Level Base Course



Install Backfill Material and Compact

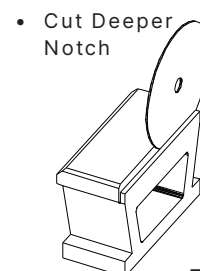


Figure 4

- Vertical Position Of Side Wall Blocks

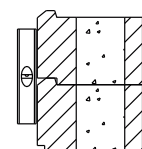
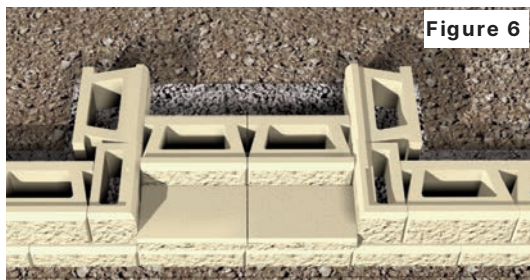
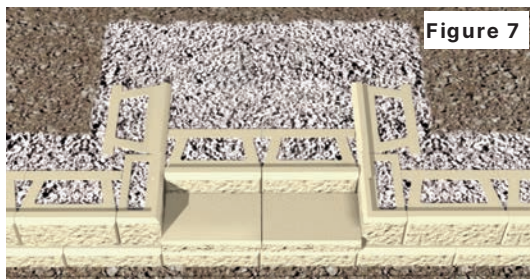


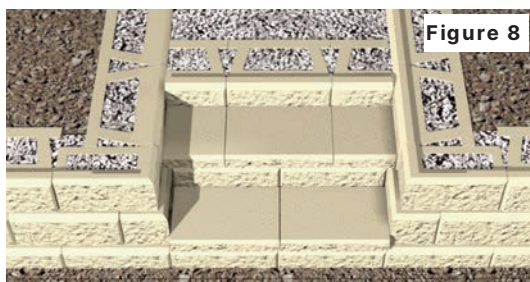
Figure 5



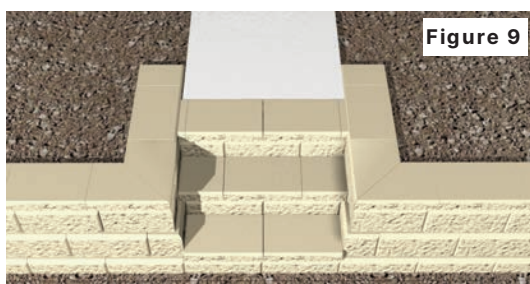
Position 2nd Course Corner Blocks, Riser Blocks And Stair Treads



Backfill 2nd Course



Install Additional Courses



Finish Top of Wall

### Step 2: 2nd Course

- Using AB Corner Blocks or AB standard blocks miter cut to form 90° corners, create an opening in the wall for the first stair tread as shown (Fig. 6).
- Place the side wall blocks on both sides of the stairs, extending back into the hillside past the front face of the next course's riser blocks (Fig. 6).
- Place the 2nd course riser blocks on top of the compacted backfill material (Fig. 6). Check for level. To maintain a running bond pattern and offset the seams between the Capstone treads and the riser blocks, some cutting and fitting will be required.
- Carefully fill block cores and 6-12 in. (15-30 cm) behind the wall with backfill materials and compact (Fig. 7).

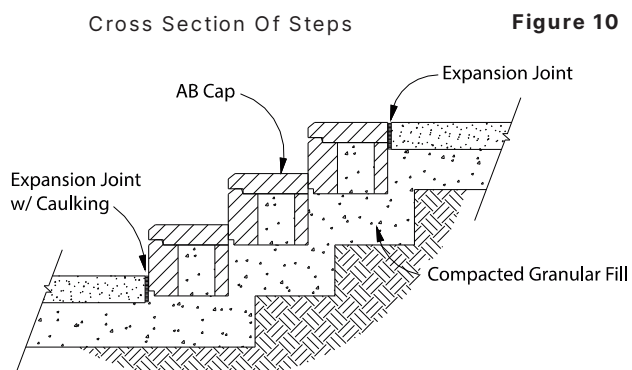
### Additional Courses

- Repeat STEP 2 for each course of the stairs (Fig. 8). Note the alternating position of the corner blocks.

### Step 3: Finishing Stair Treads

- A variety of stair tread materials may be used to finish off your steps. If AB Capstones, landscape pavers or flagstones are used, application of a construction adhesive is recommended to secure treads in place.

**NOTE: If AB Capstones or poured concrete are used for stair treads, avoid the use of de-icing salts which will cause the concrete to deteriorate over time.**



### Construction Notes:

**GRANULAR BASE AND BACKFILL MATERIAL:** Allan Block recommends using the same material for the base, the drain field within the block cores and 6-12 in. (15-30 cm) behind the wall. We recommend a well draining compactible aggregate, ranging in size from 0.25 in. to 1.5 in. (6.4 mm to 3.8 cm) diameter. See your local aggregate sources for availability.

**COMPACTION:** Use a plate compactor to compact material in 8 in. (20 cm) lifts. First run the compactor on top of the block to lock them in position. Compact parallel to the wall, working from the front of the wall to the back of the infill material. Keep heavy equipment a minimum of 3 ft. (0.9 m) from the back of the wall.

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

