

Paver Installation Instructions

STEP 1 - DESIGN AND LAYOUT

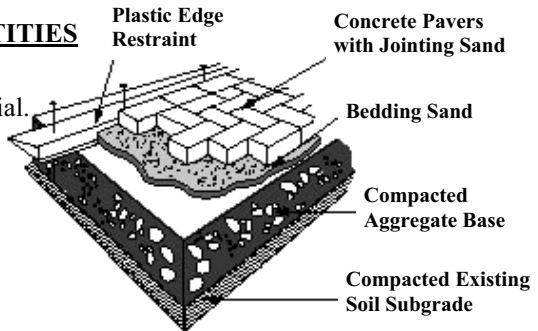
The starting point of any project is the preliminary design drawing. The drawing should be done on graph paper to a convenient scale so that it is easy to read and estimate quantities from.

POINTER: Before finalizing the design, it is recommended that you stake out the proposed area of construction and then park vehicles (for driveways) / place furniture (for patios) in the staked out area to ensure that the final product is adequately sized.

STEP 2 - ESTIMATE QUANTITIES

Items to be estimated include:

1. Volume of excavated material.
2. Volume of aggregate base material.
3. Volume of bedding sand.
4. Square footage of pavers.
5. Linear length of edging.
6. Volume of jointing sand.



Pavers

The required square footage for the pavers is measured from within the staked out area. It is important to remember that some products are sold in full bundle quantities only, so careful planning will minimize wastage. However, it is also recommended that an additional amount of pavers be ordered to account for some degree of wastage, especially if there are a lot of cuts required.

Jointing Sand

Jointing sand is used to fill the spaces between the pavers after installed to ensure the proper interlock. Jointing sand typically comes in a 30 kg (66 lb) bag, which is sufficient for approximately 10 m² (100 ft²).

Edging

Some form of edge restraint is required along all outside edges. Measure the perimeter of the staked out area, with the exception of areas against existing buildings, walks or pavement. If plastic edging is used, remember to include sufficient spikes to secure the edging in place.

Bedding Sand

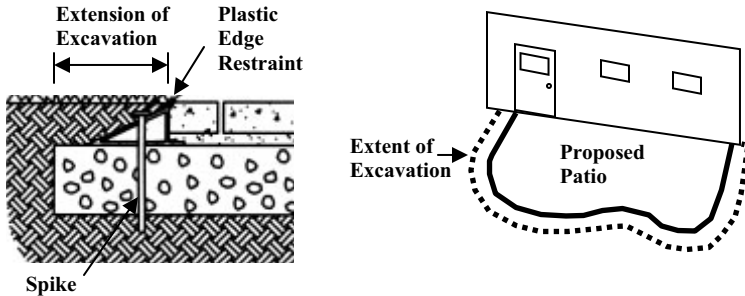
As the name indicates, bedding sand is used as a bedding material into which the pavers are installed. Provide for 35 mm (1.36") of loosely spread bedding sand over the total area of the pavers. When the pavers are compacted into place, some of the sand fills the spaces (joints) between the stones, and the total thickness reduces to approximately 25 mm (1").

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The Volume Chart on Page 4 of this Spec Manual can be used to assist in the volume calculation (using the surface area and total depth).

Aggregate Base

To provide a secure base in which to install the edge restraints, the area of excavation needs to be larger than the area being paved. The rule of thumb is to extend the excavation outwards in all directions equal to the total depth of the excavation. For example, if the total excavation is 300mm (12”) deep, the excavated area should extend an additional 300mm (12”) on all sides.



The minimum recommended depths for the aggregate base are listed in the table below; please note that these depths can increase significantly based on the type of native soil, the local climate, and heavy traffic loads. It is highly recommended that a civil engineer be consulted to verify local conditions.

POINTER– All soils take up approximately 20-30% more space in a dump truck than after it is compacted into place. In other words, if you need to fill 100 m³ with base material, you will need to haul up to 130 m³ of loose material to the site. Remember to account for this in your estimate.

Excavated Material

The following table provides examples of how the total depth of the necessary excavation is calculated based on the aggregate depth.

POINTER– As with the aggregate base, remember to allow for the bulking up of the excavated material in the dump truck.

	Walkways, Patios	Driveways
Pavers	60mm (2 3/8")	60mm (2 3/8")
Bedding Sand (Compacted)	25mm (1")	25mm (1")
Aggregate Base	200-250mm (8-10")	300-500mm (12-20")
TOTAL DEPTH	200-250mm (11 3/8-13 3/8")	385-585mm (15 3/8-23 3/8")

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STEP 3 - EXCAVATION

POINTER: Remember to complete your locates prior to starting the work.

When completed, the base of the excavation should be graded to provide proper drainage to a suitable water discharge point (e.g. storm drain or ditch). Ensure the surface is free of debris such as large stones, roots, etc. Run a compactor over the base to evaluate the stability of the native material.

POINTER: If the stability of the soil is in question (e.g. soft, wet, loose), it is advisable to utilize a geotextile to act as a separation barrier (will prevent the base material from sinking into the existing soil).

STEP 4– BASE BACKFILL

The recommended material for base backfill is the same as that used for local road construction. When selecting the compactor, tell the supplier you want to reach 98% Proctor density for that type of material – a 7,000 lbf vibratory plate tamper is the recommended minimum.

Spread the material in loose layers of no greater than 150mm (6”), spray the necessary amount of water over the soil to lubricate it (but not create mud), and compact the material in place. As a rule of thumb, if the dumptruck leaves a depression in the completed area (when it backs up to dump the next load), additional compaction is required.

To check the final surface grades, place stakes around the perimeter of the project and at any crests or valleys, run string lines between the stakes, and check the depth off the lines using a measuring tape. Note that the final grades should maintain at a 2% slope (drop of 1/4” per every foot).

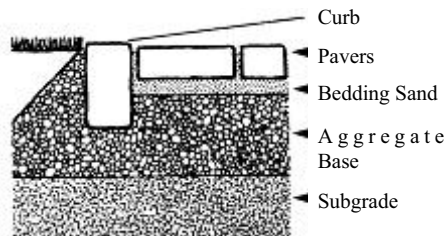
Once the general grades are verified, use a 3 m long straight edge to ensure the subbase is level– acceptable tolerances are $\pm 10\text{mm}$ ($\pm 3/8$ ”). As a guide, a pencil should not be able to be slid under the straight edge at any point.

STEP 5 - CURB INSTALLATION

This step varies somewhat depending on what type of curb is being used.

For concrete curbs (adjacent), a trench needs to be excavated into the aggregate base– the depth of the trench is based on the desired stickup of the curb.

For plastic curbing (previous page), the sections are placed directly on top of the aggregate base and staked down using 250mm(10”) spikes.



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STEP 6 - BEDDING SAND

The key to this step is to ensure a consistent thickness for the loose sand. The easiest way to do this is to use 25mm (1") diameter Schedule 80 PVC pipe for guide rails (the outside diameter is 35mm). Spread the sand loosely between a pair of pipes, then pull a straightedge along the top to level the sand out (see photo). Avoid disturbing the sand once in place.



STEP 7 - LAYING THE PAVERS

The laying pattern used is subject to personal preference; however, herringbone patterns are recommended for traffic areas.

Place chalk lines on sand at 2 m (6') intervals to provide straight line guides during installation. Always start laying at the lowest point so that stones cannot separate; place hand tight. Use a rubber mallet as required to adjust stones.

POINTER: Mix pavers from at least 4 different cubes at a time so that any colour variations between cubes are blended in.

Cut pavers to fill gaps along edges and around obstacles as required using cantilever splitters or masonry saws. For curves, place pavers beyond the final edge, mark off the desired curve, and then using a masonry saw cut the pavers in place (see photo). Ensure that area is washed down after cutting as the residue can create stains.



STEP 8- COMPACTION AND FINISH

After all pavers are in position (or at the end of each day), sweep off the surface completely and then compact the pavers into the bedding sand using a 5000 lbf plate tamper.

Spread dry jointing sand and sweep into joints until full. Clean off surface and vibrate jointing sand into spaces using tamper. Repeat until joints are completely full.