

PHB TechBullet #8

Edge Restraints

A quality paver installation should last for decades or longer. By providing horizontal interlock, edge restraints are an essential element to the longevity of any segmental pavement installation. Without edge restraints, pavers can “unravel” over time resulting in paver movement, open joints and paver damage. Some paver installers ignore the critical role of edge restraints and simply do not install them but the importance of edge restraints cannot be overstated. It is important that the designer specifies edge restraints and follow up to be sure that they are installed.

12 Restraint Basics

- ❑ As load increases, the significance of the edge restraint increases.
- ❑ Common backfill will not restrain paver movement under any traffic load.
- ❑ Aggregate base needs to extend beyond the pavement edge to provide for load transfer and edge restraint stability. Rule of thumb: base extension equals base depth.
- ❑ Planter/garden edging is not suitable as a paving system restraint.
- ❑ Timbers, even pressure treated, eventually rot and need replacement.
- ❑ Brick on edge, pre-cast concrete or stone edging is acceptable. In general, the restraint should extend to the depth of the base and reinforcement beyond backfill is recommended.

- ❑ Poured concrete restraints are good but need to have a vertical side. Angled sides create an angled joint, resulting in a wider joint at the pavement surface. Often this joint is wider than ¼" with sand loss, paver movement and paver damage occurring.
- ❑ Cut asphalt has not proven to be a reliable edge restraint under vehicular traffic load.
- ❑ Manufactured restraints should be installed on the base and not on top of the bedding sand.
- ❑ In any condition where bedding sand may clog a drainage point or migrate into open gaps in the restraint, geotextile fabric should be used to keep bedding sand in place.
- ❑ A sailor band of full pavers are recommended at the restraint edge in order to move smaller cut pieces to the pavement interior. This increases interlock within the system.
- ❑ Building foundations make terrific edge restraints. Depending upon conditions, a drainage system may be required under the pavement at the foundation.

Manufactured Edge Restraints

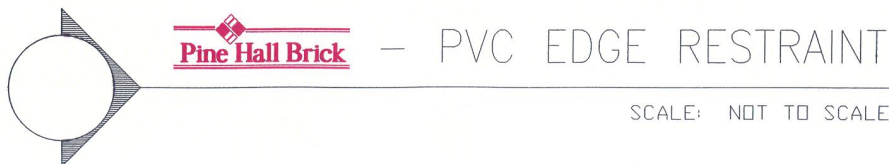
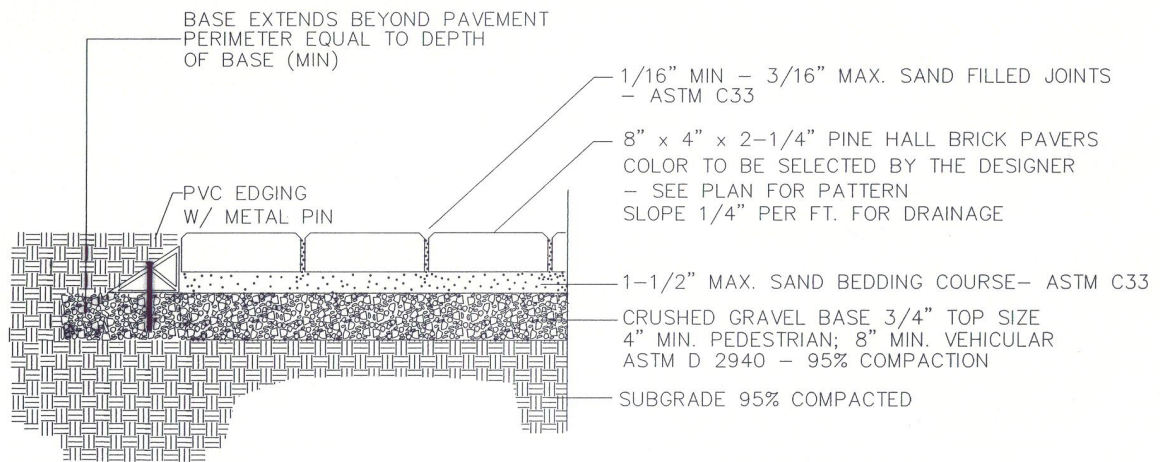
The most common edge restraints used today are manufactured restraints made of plastic or metal that are installed using landscape spikes.

Plastic:

- ❑ Light weight and extremely easy to work into designs from straight lines to curves of all types

- ❑ Very easy to install
- ❑ Economical - adds minimal additional cost to a paver installation
- ❑ Different types offer different features: frost heave lips, open frame-like construction

PHB-PV2



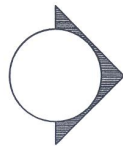
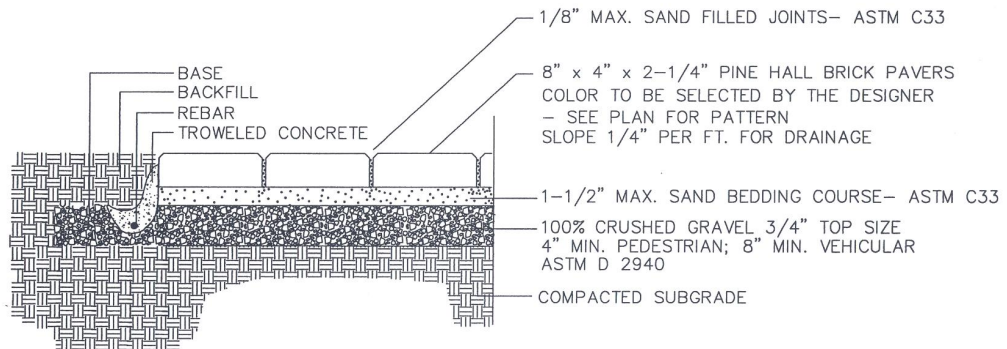
Metal:

- ❑ Many styles made from steel or aluminum.
- ❑ Used for straight runs and curved applications.
- ❑ Easy to install: Similar installation as plastic.
- ❑ May be heavier and more difficult to work than plastic.
- ❑ Generally more expensive.
- ❑ Regional preferences.

Troweled Concrete Edge Restraints

Another common type of edge restraint is troweled concrete. Installation techniques with this edge restraint vary. For many years this was considered the least expensive edge restraint requiring only a bag of concrete and limited labor to install. Over time this method of installation proved to be inadequate. The concrete would crack and break down and the edge restraint would fail. Contractors looked for ways to improve this method and today often lay steel rebar in the concrete to provide additional strength to this type of edge restraint. This type of installation seems to be gaining popularity and is illustrated here.

PHB-PV3



Pine Hall Brick

— TROWELED CONCRETE EDGE RESTRAINT

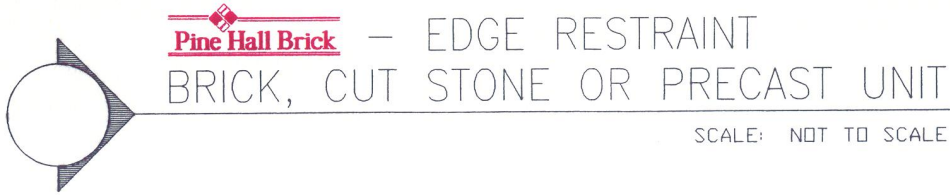
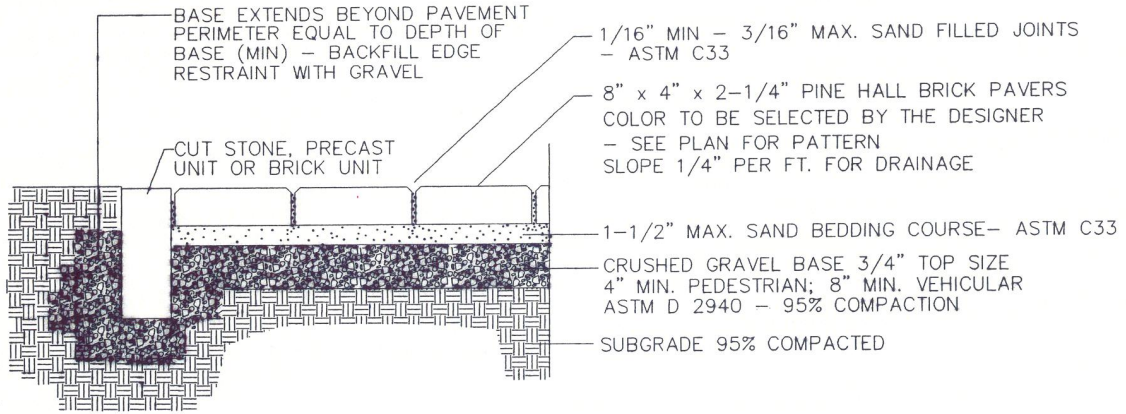
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Masonry Edge Restraints

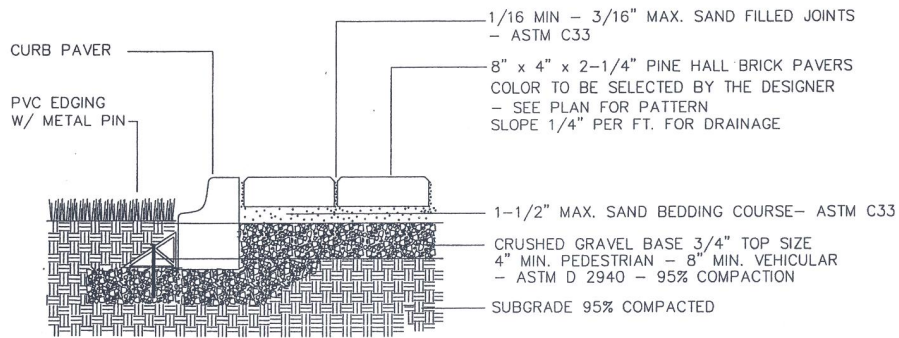
There are many masonry materials used as edge restraints. Some of these include granite block, bricks installed on edge (ex: KerbEdge), and retaining wall block just to mention a few. Being mindful of the basics listed earlier, here are several methods of

installation:

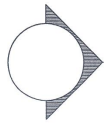
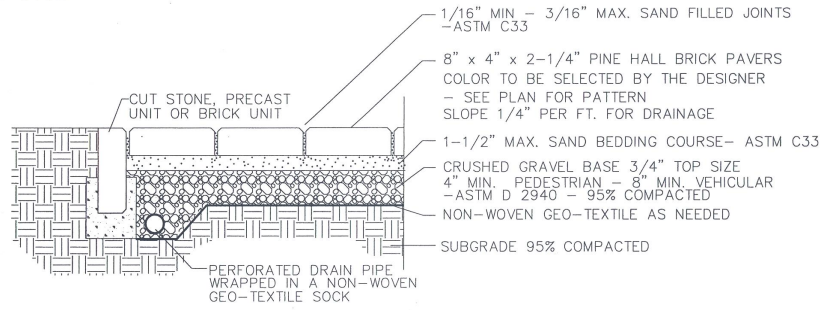
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PHB-PV23



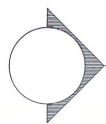
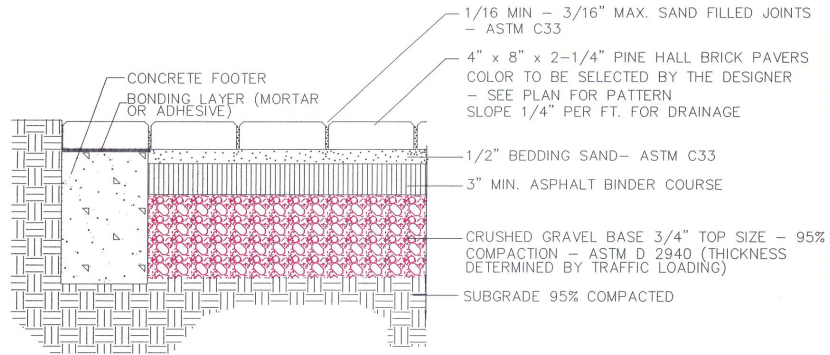
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Pine Hall Brick - SUB-SURFACE EDGE DRAIN

SCALE: NOT TO SCALE

PHB-PV8



Pine Hall Brick - SEMI-RIGID BASE INSTALLATION
HEAVY TRAFFIC CONSTRUCTION ENTRANCE

SCALE: NOT TO SCALE

KerbEdge

