



Did you know there are pavement choices that let the water seep right through? These convenient and functional paving products bring the ultimate in beauty and practicality to Best Management Practices rain-water control.

## Is Permeable Pavement Feasible at my Residence?

### Permeable pavement is appropriate where the following site characteristics are present:

- Permeable pavements should work well on most residential sites where paved surfaces such as patios and driveways exist. Areas with slopes greater than 3 percent may not be appropriate.
- Permeable pavement applications should be installed at least 3 feet from public sidewalks and 10 feet from building foundations, or have an approved impermeable liner installed to prevent infiltration under these facilities.
- The infiltration rate of the site's soils should be approximately 0.5 inch per hour, and the depth to groundwater or bedrock should be at least 5 vertical feet.
- Promoting infiltration should be avoided under permeable pavements at sites with expansive, clay-rich soils, or soils susceptible to tunnel erosion.
- At sites with certain characteristics that do not permit infiltration, an underdrain system can be installed to route the water to a storm drain or other BMP (i.e. rain garden). This type of system provides temporary storage, slows runoff, and filters some pollutants.
- There are many types of permeable pavements, including pour-in-place concrete or asphalt, unit paver blocks, and granular materials. Modular types, such as stone or brick pavers and open cell pavers, tend to be good options for residential projects. The use of the surface (i.e. vehicles, foot traffic, recreation), site conditions, aesthetic qualities, price, and maintenance requirements should be considered during the design process.

### How Much Permeable Pavement Do I Need?

Permeable pavement should be sized to capture the runoff produced from the design storm within the gravel subbase of the pavement. This will ensure the capture and infiltration of the design storm volume. The following table should be used as minimum sizing guidance for permeable pavement.

Contributing Area (sq. ft.)	Permeable Pavement Area 1ft Gravel Subbase (sq. ft.)	Permeable Pavement Area 2ft Gravel Subbase (sq. ft.)
500 - 1000	90	50
1,001 - 1,500	150	80
1,501 - 2,000	210	110
2,001 - 2,500*	280	140



## Design Criteria and Considerations

When installing permeable pavement, the following criteria should be adhered to unless otherwise permitted by the City of Long Beach. The owner should check all boxes that will be complied with.

- Installed subsurface is an open-graded base of crushed stone, which has 35 to 45 percent pore space, to allow for adequate drainage and storage.
- Site soils have adequate drainage (at least 0.5 inches per hour) and depth to groundwater (5 feet) if water will infiltrate from the open-graded base into site soils.
- Infiltration will not cause geotechnical hazards related to expansive soil movement, tunnel erosion, or slope stability.
- If infiltration hazards are a concern, an underdrain has been installed to drain water into a storm drain inlet or onsite BMP.
- Slope is not greater than 3 percent.
- Flow directed to permeable pavement is dispersed so as not to be concentrated at a small area of pavement.
- Pavers have a minimum thickness of 80 mm (3.14 inches).
- Pre-fabricated products have been installed per all appropriate manufacturer's specifications. If required, sub-grade soil has been compacted in accordance with product installation specifications.
- Project is in full compliance with all applicable sections of the current municipal code, including disabled access requirements and site drainage requirements per the Long Beach Building Code.

\* Projects adding roof or impervious areas in excess of 2,500 sq. ft. shall add 60 sq. ft. of permeable pavement (with 1' of gravel subbase) or 30 sq. ft. of permeable pavement (with 2' of gravel subbase) per every 500 sq. ft. of addition.

### Owner Certification

"As the owner of the project property, I hereby certify that the above information is true, accurate, and complete, to the best of my knowledge."

Owner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Operations and Maintenance

Once permeable pavement is installed, the following criteria should be adhered to. The owner should check all boxes that will be complied with.

- Pavement will be inspected after rains for pooling or other visible problems. Surface clogging or movement of modular pavers can cause problems with both drainage and pavement function. Missing sand or gravel between pavers will be replaced as necessary.
- Pavement will be inspected for vegetation. Depending on the type of pavement and growth, vegetation may need to be removed.
- Home owners have talked with the contractor or manufacturer for additional maintenance requirements for their specific installation.
- Permeable pavement can involve significant maintenance, depending on the type of pavement installed.



For more information, contact  
Long Beach Development Services at  
**(562) 570.5237** or [www.lbds.info](http://www.lbds.info)