

Permeable Pavement



Green Infrastructure

As our population has grown, natural landscapes, prairies and forests have been replaced by agricultural land and sprawling cities. Stormwater, once easily absorbed into the ground, now flows as runoff across pavement and other hard surfaces. Stormwater runoff is comprised of water from rain or snowmelt that flows over hard, non-absorbent surfaces, also known as impervious surfaces, like driveways, roofs, sidewalks, and streets. Stormwater gains speed as it travels across these impervious surfaces. The increased speed and volume of runoff reaching the banks of a water body causes erosion. Stormwater picks up chemicals, nutrients, debris, sediment, and other pollutants as it travels across the pavement to the storm inlet. Heat from roadways and other impervious surfaces increases the temperature of stormwater, causing a rise in the temperature of streams, rivers, and lakes. Untreated stormwater runoff can be harmful to the water bodies we use for swimming, fishing, and as a source of drinking water.

To counter the effects of excessive stormwater runoff, we can manage stormwater with green infrastructure. Green Infrastructure involves the use of soils, plants, and land features that mimic natural processes to absorb the impact of stormwater where it first falls. This reduces the volume of runoff and pollutants entering our waterways. Using Green Infrastructure to manage stormwater, we can prevent untreated water from negatively impacting our environment. Common strategies include the collection and conveyance of stormwater runoff from roofs, driveways and other hard surfaces so that rain is absorbed into the ground through deep-rooted, drought-resistant native plants, or so it can be stored for re-use.

Incorporating Green Infrastructure into the landscape of your own property offers many benefits, including water conservation and aesthetic appeal.



Description:

Permeable pavement refers to permanent pavement systems that provide stormwater filtration and storage through multiple subsurface layers. These systems capture and temporarily store stormwater runoff as well as infiltrate runoff into subsoil. Permeable pavement can include pervious concrete, porous asphalt, permeable pavers, and reinforced gravel or grass. Each of these pavement surfaces has aggregate base layers that serve as a reservoir by holding stormwater until it can be fully infiltrated into the subsoil or slowly conveyed through an underdrain system. Permeable pavements are well suited for cold weather climates. As snow and ice melt from the surface, it enters the aggregate layers below where it can be stored and allowed to expand as needed within the spaces between the aggregate. This reduces slippery thawing and refreezing issues on the surface. When constructing hard surfaces like streets, sidewalks and driveways, it's advised to use permeable pavement.

Considerations:

- Permeable pavement systems are commonly placed at low-speed, low-traffic areas such as driveways, parking stalls, and pedestrian paths.
- Although flat installations work best, permeable pavement systems can also be built on sloped surfaces.
- The aggregate making up the base layers should be washed, angular and meet industry hardness requirements.
- An underdrain system should be included to ensure that excessive stormwater volumes can be discharged properly.
- Regularly remove any unwanted vegetation and sediment from the permeable pavement to prevent clogging.
- Clean the entire surface annually by broom, blower, rotary brush or vacuum.
- Permeable pavement can be plowed to remove snow. However, sand should not be used and de-icers need to be chosen carefully.

To learn more about this and other Green Infrastructure strategies, visit:

www.OmahaStormwater.org

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