

Gravelpave2 & Grasspave2 vs Porous Asphalt and Porous Concrete

Background - Gravelpave2 is an evolutionary product derived from Grasspave2, which had to go through fire department approvals city by city for years. Each new product seems to require the same process, whether we like it or not. The strangest thing to us is that after 18 years making and selling porous paving, there are still communities that demand only asphalt or concrete for paving surfaces. No doubt the asphalt and concrete paving industries have some influence with local communities, but surely reasonable heads must prevail after all this time.

Grasspave2 was the first product we made, and was used for emergency access, access to sewer manholes, detention basins (for removal of sediment), etc. Gravelpave2 was not introduced until 1993 when we developed a method to mold plastic onto the fabric instead of using adhesives.

Strength - Both will handle loads of the heaviest vehicles allowed on roads and streets (plus a great deal more), provided the base course is designed to accommodate the load. We use a rough guideline of 1" of sandy gravel base (3/4" to fine sand mix) per 10 psi of tire load for the heaviest vehicle to use the surface. Most heavy trucks maintain tires with pressures that range from 100 to 120 psi = 10" to 12" base. Clay or silt subsoils usually call for separation fabrics between subsoil and base course.

Structural weakness and clogging of porous asphalt and concrete has always been a problem, due to the high void content and size of void due to aggregate size and nature of rigid binder materials involved. High voids (compared to regular asphalt and concrete) place a lot of load force upon the binder material between aggregate pieces to prevent particle movement. With heavy loads (and/or with high surface temperatures in asphalt) this force exceeds strength of the binder and the aggregate begins to move - generating ruts or total failure of the wearing course.

No Clogging - We take the position of filling the large voids between aggregate (3/4" to 1/4" most common) with fine to large sand for greatest structural support, which provides similar porosity (at least rapid enough for most storms) but keep suspended clay and silt sediment confined to the upper surface. With Grasspave2 this clogging layer can be stripped off with sod cutters or power brooming periodically, without loss of the pavement structure - only periodic (15 to 30+ years) reseeding may be required. With Gravelpave2 we can vacuum or power broom the upper surface - with only slight topdressing required.

Both of our surfaces are flexible, resulting in cracks being nonexistent. Sediment would have to come in the form of a flood, settling in a layer of about 3/8" to 1/2" to completely block water flow through our cross section - very rare!. Our porous base course is also key, allowing water to be stored initially (GP2 = 25% void storage, GV2 = 35% void storage), and then percolated into subsoils as quickly as allowed.

Best of Both Worlds - When filled with porous asphalt, our Gravelpave2 structure will provide containment and load bearing support that porous asphalt needs, excellent lateral drainage to eliminate hydroplaning, noise reduction at high speeds, and the ability to recycle the section with standard equipment, with the plastic portion becoming "aggregate" or part of

the binder when reheated. In low speed applications, such as parking areas, we would suggest pre-filling the voids with a fine sand (mason's sand) to keep clogging material at or near the surface for easy access by normal maintenance, and to extend the longevity of the pavement.

Costs - Our porous pavement systems are generally between regular asphalt and concrete (lower when drainage costs are included), but definitely below porous versions of asphalt and concrete. Longevity of our surfaces is much longer due to reasons stated above.

If you have any other questions, please let us know.