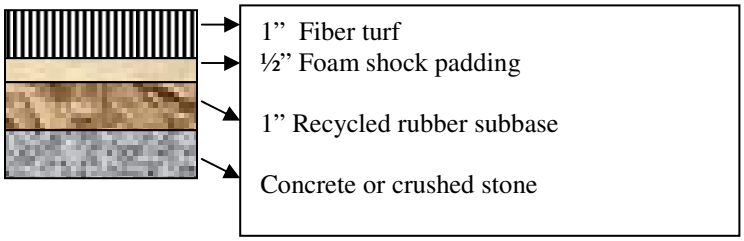
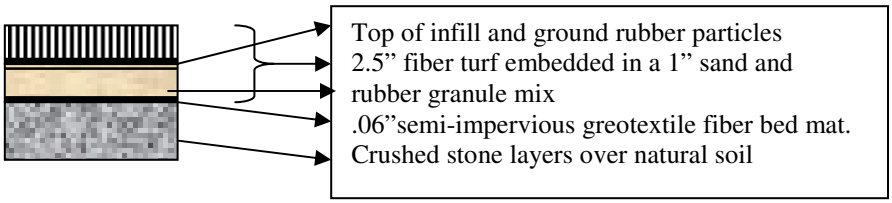
**EPIC vs. SYNTHETIC GRASS**
**Artificial Athletic Field turf Analysis**

In 1965 the first synthetic grass was introduced into the athletic field business, and the coaches and sports writers claimed it was the next best thing to sliced bread. Ads and accolades made proclamations "**as good as grass"**, "more durable than grass", and "**players preferred**" it. However, after a number of years of real life use, the synthetic turf installations showed an increase in injuries, a decrease in traction, a collapse of the support medium, and a surface degradation due to sunlight, and **athletes hated it**.

A cross sectional analysis of the turf was as follows:




A generation later (1997) another company reintroduces another version of synthetic turf with the same proclamations and a slightly different structure profile:




With a price tag of $650,000 per football field (**$ 11.00/sq.Ft.)**, and an eight year warranty what can go wrong with the "new" artificial turf?

- Sand is an excellent shock absorbent choice, and is, as claimed, the substance in soil and the "new turf" that makes traction possible. However sand is also an abrasive substance (sandpaper) that now has the ability to grind against the embedded fiber turf and the rubber. In time fibers will weaken and break because unlike grass they do not have the ability to regenerate themselves.
- Due to the big difference in densities, sand and rubber particle mixtures are not stable formations. During grinding and vibration actions, the physical tendency is for the heavier sand particles to stratify downward and the lighter rubber particles to drift upward.

- If the design allows for drainage through the support base, by design the geotextile turf base has to be porous. Pores in the **2 mm** range are not uncommon. Sand particles are considerably smaller, with medium sized grains at only **0.5 mm.** When damp, water offers some adhesion to clump sand particles together, however when dry (a guarantee in desert climates), sand will over time migrate past the recycled rubber and disappear into the still larger voids available in the crushed stone.
- If the design incorporates an impermeable layer or fabric material that eventually plugs as a filter, the field needs to be sloped to facilitate surface runoff to the field edges. Heavy rains then tend to make the sand mix fluid and induce a lateral migration. Claims of a porous stone base for exceptional drainage are mute because the surface water cannot easily enter the rock layer due to a perched water table or a plugged fabric, hence the fields are still sloped.
- All plastic and rubber is subject to eventual UV degradation. The more sun, the more UV radiation. The higher the altitude, the greater the UV dosage. UV inhibitors may delay the degradation process by absorbing UV energy and converting it to heat (just what a field needs on 100 degree day). However the inhibitors themselves are destructible organic compounds, which do not work forever.
- Although mowing is not required, artificial turf is not necessarily maintenance free. Dirt, debris from cleats, and windblown dust storms, especially in desert climates, tend to get quickly entrapped among the upright fibers. The original synthetic fields were routinely vacuumed. Vacuuming the new version threatens the uptake of the sand and/or rubber particles intended to remain in place.
- Sanitation is a frequently ignored issue on artificial turf. Athletic activities inevitably lead to secretions of blood, vomit, spit, chewed gum and other bodily fluids. Pets and wild animals will urinate and defecate on the surface. Pathogens associated with these secretions are now contaminating the playing surface. On natural grass, complex soil bacteria and other microorganisms initiate a decomposition and neutralization process to pathogens and contaminants. The absence of these biological systems on artificial surfaces allows the contaminants to simply stay dormant and infectious for long periods of time. Salmonella has been known to be viable on dry surfaces for several months.

## CONCLUSIONS

1. **Why settle for a shock absorbent feature of 1" of sand when 13" are available in the EPIC system?**
2. **Why settle for non-regenerative polyethylene fibers that mimic grass when renewable real grass is guaranteed with the EPIC design?**
3. **Why pay up to $ 11.00 per square foot for something that tries to mimic real grass, when an ideal real grass can be available at less than $ 6.00 per square foot?**
4. **Any athlete prefers good natural grass hands down. Read the most recent NFL survey article http://www.athleticturf.net/athleticturf/article/articleDetail.jsp?id=148868**
5. **In hot climates, the cool surface of living grass is much more pleasing than a relatively hot surface of artificial turf. (Comparative tests in Reno Nevada on a**

**sunny 88°F day showed surface temperatures on EPIC grass at 69°F and 109°F on the artificial surface measured in the shade) For additional read on temperature see http://www.athleticturf.net/athleticturf/article/articleDetail.jsp?id=85955**

6. **Why trade off grass stains to films of rubber and sand particles that stick to sweaty skin and get into eyes during play?**
7. **While mowing is the only routine maintenance requirement of an EPIC lawn, the act of mowing also removes accumulated dirt and debris to make the field look brand new all the time. For additional read on maintenance costs read: http://www.athleticturf.net/athleticturf/content/contentDetail.jsp?id=162975**
8. **Eventual worn areas in both systems will have to be repaired. Repairing artificial turf needs specialized skill and equipment that ends in hard to blend color patches. EPIC areas need only to be sprinkled with appropriate seed grasses.**