

# REMOVAL OF A 10-YEAR-OLD SYNTHETIC SURFACE

By: Sean Connell

Last summer, I replaced a synthetic field at a Division III College in Allentown, PA. The field was 10 years old and school wanted to accommodate other sports, update the field and respond to fears about lead in the synthetic fibers. The construction took about 2 months to complete after scheduling of all contractors. The field consisted of a 10-year-old AstroTurf® carpet with a double elastic (e) layer (34 mm). This was not an infill system. The AstroTurf® carpet was only about 0.25-inch thick.

The first part of any construction job is to install a construction entrance/exit. The running track was covered (including the "D" zones behind the field's goal post) using a Mondo® surface. This is a paved surface that is spongy to the touch and has a red finish on top. It is a hearty surface but not when crossed with construction equipment. So the construction entrance was covered with two (2) layers of plastic visqueen, 2.0-inch rigid foam insulation, 0.75-inch plywood and topped with crusher run type gravel. This gravel has fines in it so it tightens up for protection at 12-inch thick. It seems

like overkill ... until tandem dump trucks are run across it.

From there we cut the carpet with a stand-up, cut-off saw with water. The cuts were made every 8-foot using the lines on the field. We had to make cross cuts every 40 or 50 feet for removal. Initially, we tried to save the e-layer but could not separate the backing of the carpet from the e-layer. The removal was easy. We used a grapple bucket on an 81-hp track steer and just rolled up the carpet and e-layer and then drove to 30-yr dumpsters. The field was only 77,000 square feet so it was small compared to most fields. The complete removal only took 4 days and 30 dumpsters. The school had to submit a sample prior to construction to the dumpster company to see if they would accept the material as waste - which they did and there were no problems.

The sub-grade left behind was not in bad shape but had spots that were a problem from the initial construction. A new field grading plan was devised. The

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factors that determined the new plan were the depth of the e-layer, height of carpet, existing material and the outside elevation of the curb. From that information, we did slopes to the each sideline of 0.6% and matching "D" zone grades of 50 linear feet (LF) from the field goal posts, 1% to the end zone and 0.6% to the right and left. Some additional material, which was available and original to the project, was needed to complete the sub-grade. The field was laser graded and rolled smooth with the additional material. After that was complete, we installed a 1.0-inch layer of #8 stone (which is less than 0.25-inch in size) to achieve a smooth final grade. This layer was laser graded and rolled to smooth. A certified land surveyor was then used to record all grades – this confirms all grades. The carpet company approves sub-grade before acceptance.

The fibers of the original carpet were tested for lead and it was determined that lead was present in the fibers; however, an adult would have to consume over 20 lbs of carpet to have a noticeable dose.

During the cutting and removal of the carpet, the school hired a company to do air quality testing. The sample collectors were placed around the field during

work hours and employees wore air testers on their work clothes. All results were negative with respect to any lead in the air; the lead was found in the nylon fiber of the carpet only. We had no additional issues related to the subject of lead.

When the carpet company accepted the sub-grade, they brought in the material for the new e-layer. This material is paved and is a cold emulsion. It is porous and is used for drainage and as a pad for the carpet. Using an e-layer was previously a standard component with synthetic fields; however, it is used less frequently in the current era of synthetic field construction.

The new carpet was a monofilament carpet without lead and was infilled with crumb rubber. The school was happy the carpet that they had but wanted to update and accommodate the field for soccer and field hockey. The previous field required painting for football as well other sports; so the change was welcomed from a maintenance standpoint. Additional footers were installed for field hockey to put-up nets behind the field goal posts that stretched across the entire "D" zone. The new carpet had permanent lines for all sports that originated from the factory. Sean Connell is Owner and Primary Project Manager,

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