

# Recycling synthetic turf fields and infill material: case study

**F**ATHER TERRENCE A. BAUM, a Jesuit priest and president of Rockhurst High School in Kansas City, MO clearly is a believer in the “seek and you shall find” and “ask and you shall receive” approach to life—and high school athletics!

Father Baum asked for a new athletic field before the 2010-2011 academic season began. And he got it.

Father Baum also asked that the old turf and infill be recycled. And he got that, too!

The Rockhurst High School athletic program has been ranked by *Sports Illustrated* in recent years as one of the Top 10 high school athletic programs in the nation. Rockhurst has won 34 state championships in the past 10 years. The mission of the athletic program is to develop strong leaders through discipline, perseverance, and the pursuit of excellence through team sports and physical education activities.

Here’s how prayers were answered and dreams were realized for Rockhurst High School administrators, staff and students when their multi-purpose athletic field was installed in only 17 days last summer.

## THE CHALLENGE

Earlier last year, Father Baum, Rockhurst High School athletic director Peter Campbell, and director of facilities Delbert Conrad were faced with choosing between repairing their existing athletic field and replac-

>> **EXTRACTING INFILL** from the existing field at Rockhurst High School. MDH Turf tested, cleaned and recycled the infill using a proprietary technique.



## Six steps to recycling and replacing synthetic turf and Infill

MANY OF THE 5,000-PLUS SYNTHETIC TURF FIELDS in North America are approaching the end of their useful life. Maintenance and repair costs are typically so high that upgrading with new turf and infill is usually the best option for facility owners and managers.

MDH Turf, a subsidiary of McAnany Construction, offers six key steps for upgrading turf fields with an effective and progressive recycling solution that the company calls “The Extreme Turf Makeover.” MDH has found that recycling turf and infill can save a client approximately 20% of the total budget on a new turf and infill installation project, reduce fuel consumption for transportation of the old turf and infill to landfill, and eliminate waste in landfills.

The steps and timeframes outlined below are provided for a typical 100-yard football field based on MDH’s actual experience.

### 1 ASSESS THE FIELD CONDITION

Evaluate the condition of existing infill, the grade of the field, condition of existing nail board, and any potential drainage issues. If needed, the general contractor or project owner will engage an architect with athletic field design experience to assist with making adjustments to the grade of the field. **Estimated timeframe: 2 days**

### 2 EXTRACT EXISTING INFILL

Using an extraction device, remove all existing field infill. MDH has found that about 95% of the existing infill can be removed and reused; however, usually only about 2/3 of the original infill is available for salvage due to infill loss over the 8-10 year life of a typical synthetic field. **Estimated timeframe: 36 hours**

### 3 RECYCLE EXISTING INFILL

Test the infill to ensure that it meets or exceeds GMAX standards for adequate shock absorbency. Sieve the infill to sort out sand and other debris. Clean all extracted infill (MDH is able to remove 99% of all bacteria removed from contaminated infill through a patented cleaning method.) **Estimated timeframe: 7 days**

### 4 REMOVE EXISTING TURF

Remove existing turf. Transport all sections of turf that is in good condition and make it available for other landscaping, sports or recreation applications. Ensure that the base grade of the field is in good condition and is free of infill spillage. **Estimated timeframe: 2 days**

### 5 PREPARE THE FIELD

Grade the field using laser equipment. Re-grade the subsurface to meet field specifications. Repair the drainage system and nailers as needed. Secure certification from the architect and turf installation crew that the requirements for the field are met and adjust the grading of the field as needed. To expedite the preparation process, the contractor or project owner may choose to assign multiple work crews to various parts of the field. **Estimated timeframe: 16 hours**

### 6 INSTALL NEW TURF AND RECYCLED INFILL

Install new turf. Approximately 93,000 square feet of new turf is typically needed for a 100-yard football field. Stripe the field for use by multiple sports. Apply numbers. Insert home team logo. Add freshly recycled rubber infill and appropriate amount of new rubber infill to meet the needs of the field. Approximately 300,000 pounds of infill is typically needed for a 100-yard football field. **Estimated timeframe: 10 to 12 days**

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ing the field altogether. The turf field was in almost continuous use for football, soccer teams, lacrosse, and physical education classes. When their grass facilities were unplayable due to weather conditions, the school's baseball and track and field teams also used the turf field for practice. Their old synthetic turf field was 9 years old and the warranty had expired. Estimates of up to \$80,000 to recondition the old turf field for the next school year deemed the repair option to be impractical and unacceptable.

Turning to several general contractors for recommendations and estimates, Rockhurst administrators were being told that their athletic field renovation would take between 4 and 6 weeks, and that the work would have to be done after football season ended in late 2010. Only one of the general contractors in the mix offered a much shorter time frame, MDH Turf, a new subsidiary of McAnany Construction, Shawnee, KS. McAnany and MDH committed to completing the field in only 2 weeks.

#### “EXTREME TURF MAKEOVER”

Assigning Ed Huggins as project manager, MDH Turf imple-

mented a design/build solution that included TigerSports Americas, Inc., as the synthetic turf supplier and VSR Design as the architect for the field design enhancements. The TigerTurf US operation is based in Austin, TX while VSR Design is out of Overland Park, KS. Huggins has had a working relationship with VSR Design for more than 20 years.

“The level of care and concern from the collective team impressed me quite a bit. McAnany had reps from TigerTurf meet with officials from our school to explain about the durability and other characteristics of the TIGER XQ 48 turf product that they had specified. I had every confidence that McAnany and MDH Turf would take special care with the sub-surface and grading of our field,” Father Baum said.

“McAnany also offered up and promised a short, 2-week turnaround time so that our summer camps and practices for football and soccer would not be hindered. It became apparent within only a few days of beginning the project that they were keeping their word. They had crews working through the blisteringly summer heat to stay on schedule,” Father Baum said.

The project got under way on July 23 and wrapped on August 9. Undertaking what it now calls The Extreme Turf Makeover, MDH employed three continuous shifts of crew members for several consecutive days to meet the tight project schedule and install 103,000 square feet of new turf.

Recycling the old turf and rubber infill was an additional requirement for the Rockhurst project. Using an extraction device

» **Photo 1: THE REMOVED AND RECYCLED OLD TURF** from the field was made available for other sports, landscaping or recreation applications.  
» **Photo 2: THE GRADE** of the field was adjusted to accommodate a variety of uses by the school's athletic department. » **Photo 3: MDH Turf** added freshly cleaned, recycled rubber infill as the final step for the new Rockhurst High School synthetic turf field. The project was completed in only 17 days.



over a 3-day period, MDH was able to remove approximately two-thirds of the original rubber infill. The infill was then tested, cleaned and reserved for reuse on the new field. Work crews removed more than 100,000 square feet of old turf, which was salvaged and made available for other turf projects in the Kansas City area.

“Recycling the turf and infill saved about 20% of the total estimated cost of the new field. And we were able to eliminate the need for transporting the old turf to a landfill, which would have consumed approximately 1,000 gallons of diesel and added about 350,000 pounds to a landfill site in another state,” Huggins said.

Vance Rzepka, founder of VSR Design, determined through an onsite assessment that the existing grade of the field and the perimeter constraints of the track and field events would present a significant challenge that had to be addressed. He also had to factor in the school’s need to accommodate many different sports with the fewest compromises in adjusting the field design.

“The existing track and field events in both ‘D’ areas and the shape of the sub-grade limited how much grading could be done to the finished surface. The existing field had a crown on one end and was sloped from the 30-yard line to the back of the end zone. The ability to make the crown uniform along the entire length of the field was limited by the sub-grade and drainage rock thickness. Also, the addition of perimeter netting to allow lacrosse practice during track practice added a level of complexity to the coordination of the entire project,” Rzepka said.

Rzepka worked closely with MDH Turf throughout the laser-grading process and also supervised and approved the placement of the additional rock that was needed to prepare the sub-surface of the field.

“Quality control was happening real time throughout every stage of this project,” Huggins said. “The TIGER XQ 48 product was the best solution for Rockhurst High School since we were well aware of the extremely high usage that this field would have to withstand,” said Bob Aurich, regional sales manager for Tiger-Sports Americas

With the completion of the field renovation accomplished in early August, Rockhurst High School coaches and student athletes were able to get ample time on the practice field to gear up for the competitive fall season. The varsity football and soccer teams went on to win state championships after their first season of play on their new field.

“We have had zero problems with drainage, and the players love the resiliency of the turf,” Campbell said. “Our coaches were especially happy to have been consulted and updated throughout the entire renovation process. Having Delbert Conrad closely involved every step of the way facilitated the entire process. Delbert was empowered to make decisions that kept the project moving forward effectively. If changes needed to be made, they were made quickly and to the complete satisfaction of everyone involved.” ■

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