

New Golden Gopher football stadium opens

TCF Bank Stadium, the new home of Minnesota Golden Gopher football, isn't just a football venue, according to the university, but also a monumental contribution to the university's heritage, as well as a living, breathing icon for the whole community to enjoy. The stadium is located on the northeast side of the Minneapolis campus, near the site of the former Memorial Stadium.

The stadium's open-air horseshoe design allows a capacity of 50,000. With sustainability in mind, 97% of the nearly 9,000 tons of steel used in the structure came from recycled steel. Flexibility was also a key component of the design, with expansion capability up to 80,000 seats. All those seats are housed in a collegiate look and feel that will complement the campus environment, create two landscaped plazas, and accommodate other uses. The total cost is \$288.5 million, which includes site preparation, the stadium itself, and district improvements. The improvements are particularly notable. The stadium is part of a 75-acre expansion of the Twin Cities campus—the largest since the West Bank was built in the 1960s. Current plans for the area call for the construction of as many as 10 new academic buildings by 2015. The proposed Central Corridor light rail transit line is expected to run near the stadium, with a station in Stadium Village serving the facility.

Minnesota selected FieldTurf for the new stadium, which will officially debut on September 12 when the Gophers host Air Force.

HOK Architects (now known as Populous) was the primary architect and designer. The facility is a traditional horseshoe-style college stadium that retains many of the design elements of Minnesota's Memorial Stadium. The stadium's field is oriented in an east-west configuration, the only football stadium in the Big Ten to be laid out that way. Fans will understand this orientation come game days, with the sweeping views of both campus as well as the Minneapolis skyline through the structure's magnificently open west end. Installation of the brick and cast stone portion of the building began in the summer of 2008; the first brick was laid by Hilding Mortenson, 100 years old, who was a bricklayer for Memorial Stadium in 1924. TCF Bank Stadium will also feature the fourth largest video board in all of college football.

» **Below: TO MAXIMIZE USABLE SPACE**, RESI created a multi-functional plaza that eliminates the need for a traditional stormwater holding pond.



Above: Photo by Eric Miller, University of Minnesota Athletics



» **Above: THE EPIC SYSTEM** located within the subsurface of the landscape plaza filters, stores and controls storm water runoff from 3.75 acres of TCF Stadium's drainage area.

Designed and built by Daktronics, the video board is 48 feet high by 108 feet wide and includes Daktronics' HD-X light-emitting diode (LED) video display technology.

RESI (Rehbein Environmental Solutions, Inc.) installed its Environmental Passive Integrated Chamber (EPIC System) stormwater management system and Netlon Advanced Turf System (Netlon ATS) outside the stadium. To maximize usable space, RESI created a multi-functional plaza that eliminates the need for a traditional stormwater holding pond. Netlon ATS stabilizes soil, improves load bearing capacity, reduces compaction and decreases the potential for rutting and deformation when it will be used for media vehicle parking, says RESI. The EPIC System located within the subsurface of the landscape plaza filters, stores and controls storm water runoff from 3.75 acres of TCF Stadium's drainage area. This watershed is seven times the footprint (0.54 acres) of the underground EPIC System, will manage all runoff from a 3.5-inch rain event and filter and hold more than 140,000 gallons of water.

Water treatment capability of the EPIC System removes pollutants from stormwater by filtering runoff through the plants roots and sandy soil. At TCF Bank Stadium, the EPIC System can remove more than 85% of phosphorous pollutants in the water. The design and system will prevent downstream water bodies from having excessive algae growth and maintain the health of the Mississippi River.

"Within this highly urban site, space is at a premium and we added value to the landscape function" said Mark Apfelbacher, Senior Sustainability Consultant and LEED AP at RESI. "The system provides a beautiful solution that improves water quality, enhances natural turf grass strength to support the weight of media trucks and can still be a usable space for Minnesota fans."

Headquartered in Minneapolis, RESI is a green-build environmental company that consults and designs with proprietary technology to create usable green spaces, such as parks or athletic fields, grass parking areas and green roofs that clean, store and re-use storm water and other water resources. RESI projects include the Houston Texans Stadium, Southern Methodist University (SMU), the Minnesota Twins Stadium Plaza and the FIFA 2010 World Cup Nelson Mandela Bay Stadium in Port Elizabeth, South Africa. ■

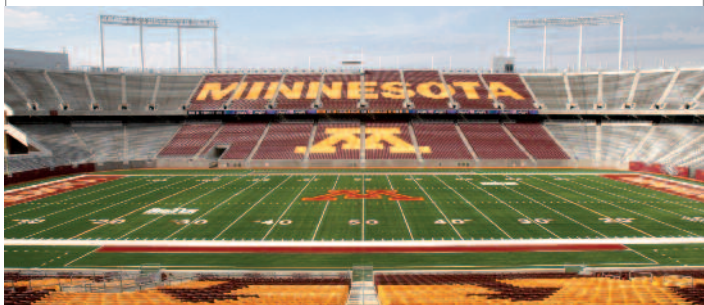


Photo by Eric Miller, University of Minnesota Athletics

Smart tech could save billions of liters of water

An article by Mark Kolmar and Michael Szabo on www.reuters.com says Americans can save some of the 225 billion gallons of water wasted each year through over-watering by installing smart systems which deliver just the right amount of moisture.

Homeowners and companies overwater their grass and plants by between 30 and 300 percent, said Chris Spain, chief sustainability officer at water management company HydroPoint, citing a report by the American Water Works Association.

"The reason for the waste is because of dumb technology," Spain said. "There are 45 million irrigation systems in the U.S. (controlled) by simple timers. They do a great job of keeping time but a lousy job of irrigating to what the land requires."

City landscaping, or "urban irrigation," makes up 58 percent of urban water use, Spain said, adding that the water wasted generates more than 544,000 tons of greenhouse gases annually.

Smart irrigation systems are programmed to optimize water use based on parameters including plant and soil types and amount of sunlight, and also feature weather sensors that monitor soil moisture levels following rainfall.

"U.S. water-related energy use is at least 521 million megawatt hours a year, equivalent to 13 percent of the nation's electricity consumption," said a River Network Carbon Footprint of Water report published in May.

"The carbon associated with moving, treating and heating water in the U.S. is at least 290 million tons a year."

Climate change also affects water levels, with western states experiencing their driest years since records began.

This year marks the third of drought for the most-populous state of California where lawmakers are urging residents to take shorter showers and water lawns less frequently to cut consumption a fifth.

Several studies found that smart irrigation systems command water savings of between 16 and 30 percent over traditional timer-based controllers, which come at a similar cost.

"It's not like solar, lighting or other systems which require vast infrastructure changes," Spain said, adding that his clients have saved \$75 million in water cost savings.

Jennifer Riley-Chetwynd of Rain Bird said her company saw a corporate headquarters nearly halve water used for irrigation from 416,000 gallons per year to 214,000 gallons. ■

A few words from Mike McDonald, CSFM

SportsTurf: How was the decision made on installing FieldTurf, and were you involved in that choice?

Mike McDonald, CSFM, turf manager for the University of Minnesota:

Administrators and the football coaching staff picked from different companies, then put it out to bid. I was not involved but I did put in my 2 cents anyway.

ST: What systems have been installed to irrigate/cool the field? What is the drainage system? And how much were you involved in those choices?

McDonald: The cooling theory has been proven not to last long, so no underground irrigation was installed. I did have four water connections put in the goal line areas of the field wall. The drainage is a herring bone system draining into a perimeter main around the field. No say in this area.

ST: What new equipment has been purchased to maintain the synthetic surface?

McDonald: Along with the brush and sweeper FieldTurf includes with their system, we purchased a Redexim sweeper from Charterhouse.

ST: Have you put together a maintenance plan for this surface?

McDonald: We're going with the same type of plan as our practice turf. Hand pick after daily use. Broom as needed. Redexim sweep every 3-5 weeks as use/debris determines. Because this is an outdoor field, we do not plan on sanitizing it. ■