



DENVER BRONCOS PRACTICE FIELDS

TURF HEATING PROJECT PROFILE

REHAU PEXa Pipe and Smart Controls Keep Denver Broncos Practice Fields in Tip-Top Shape

In Denver Broncos lore, it's known simply as "The Drive," a magical display of calm and determination in the last five minutes and two seconds of the 1987 AFC Championship game. Quarterback John Elway led his team 98 yards in 15 plays to tie the game with 37 seconds left in regulation. The Broncos eventually won in overtime, 23-20.

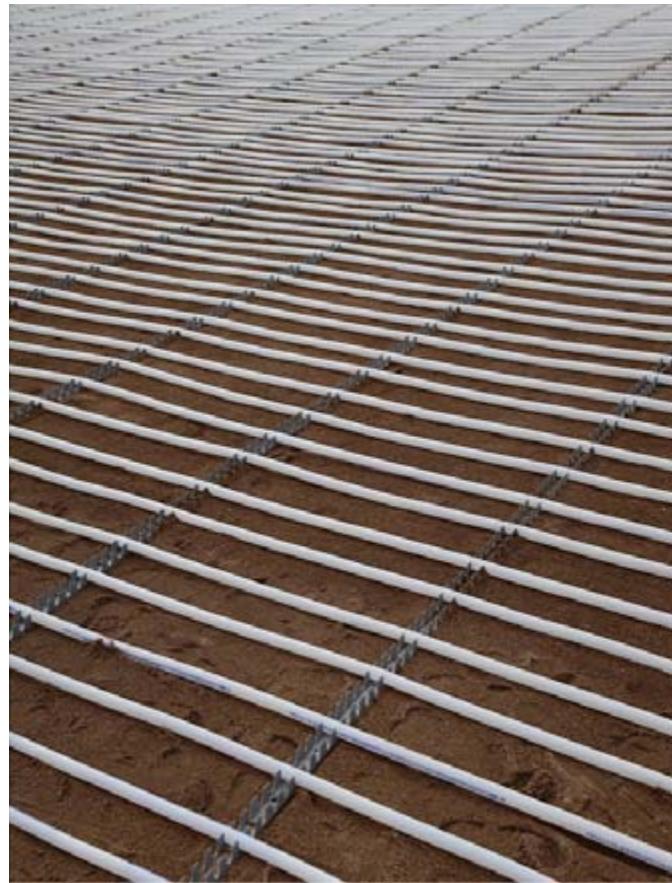
Fast forward 26 years to the Denver Broncos training facility in Englewood, Colo. A crew tasked with installing a hydronic turf heating system under side-by-side practice fields felt similarly backed into a corner. The project, which typically would take up to six months to complete, had to be installed between February and April 2013. Although they didn't know it at the time, the workers would face some of the harshest winter conditions Denver had seen in years.

"We had six major snowstorms while working on the project, one of which was 12 inches," recalls Brian Storm, president and CEO of Fields, Inc., a Georgia-based sports field construction company that served as the prime contractor on the project.

The Broncos training facility has two outdoor natural grass playing fields and one synthetic field. Prior to this project, only one grass field was heated using an electric soil heating system that was outdated and expensive to operate.

As Broncos Head Turf Manager Brooks Dodson explains it, "With the value of the athletes these days, the field condition for practice is much more important and gets a lot more attention. If a guy slips on a field, it's not acceptable."

The project called for removing the turf as well as the top 8- to 12-in. layer of sand-based soil, which is known as the "root zone," installing 210,000 ft of 3/4-in. RAUPEX (PEXa) Non-Barrier pipe and connecting it to two 6.5-million Btu boilers that would power the hydronic heating system. System performance would be controlled by a REHAU Smart Controls system that allows for remote, around-the-clock monitoring and control of the root zone temperature while also providing freeze protection monitoring of the system. The challenge was to have it installed and the natural grass turf back in place in time for April practice sessions.



Oh, and there also was the part about constructing a boiler room from the ground up to house the large boiler units.

Once completed, warm water is circulated through the RAUPEX pipe to maintain a root zone temperature of 60 degrees throughout the football season. The objective, Dodson says, is to keep the field from freezing. Maintaining the temperature of the root zone within the optimal range throughout the season allows us to provide a safer, more playable surface for our athletes.

Crews from Fields, Inc. and R&H Mechanical, the project's mechanical contractor, worked seven days a week alongside others on the project in order to complete the work on schedule.

Dave Young, owner of Eagle, Colo.-based R&H Mechanical, said the ease with which RAUPEX can be installed was crucial to finishing on time. He also was thankful for the on-site support REHAU provided.

"They were Johnny-on-the-spot," Young said. "The most important thing you need from a partner like REHAU is support. If I didn't have my product when they said I would have it, it would have been a disaster. Other manufacturers and parts suppliers I have worked with would have hung me out to dry on this one. They may have tried, but I don't think they could have pulled it off."

REHAU Account Manager, Mike East, says REHAU flew in components from a German factory and trucked in custom-fabricated headers from other U.S. manufacturing plants in order to have the necessary components on site.

Equally important to the support it provided during installation of the heating system was the "we've got your back" attitude that REHAU exhibited when the system was initially used the following November. The system was tested after it was installed, but you never really know how it will perform until the cold weather hits, Dodson says. East and other REHAU team members supported Dodson as he learned how to work the REHAU Smart Controls system, which allows for monitoring and controlling the system remotely from a computer, smart phone or other connected device. (When the Broncos made it to the Super Bowl in 2014, Dodson shut down the practice facility's heating system from his New York hotel room.)

Dodson says the new system heats both natural grass practice fields for less than it cost to heat one field using the old electrical system. The system's efficiency is unwavering. Among the copious amount of data provided by the REHAU Smart Control system was this: In December 2013, when temperatures hit minus 10 degrees, the heating system underneath the practice fields maintained root zone within 1 degree of the 60 degree target temperature while only requiring the boilers to fire at 70 percent of capacity.

Dodson continues to lean on East and other REHAU reps today for maintenance support. "I'm smart enough to know what I'm good at and what I'm not," Dodson says. "Mike is my go-to guy. He has an eye on the system as much if not more than I do."

Like "The Drive," the installation of the hydronic heating system underneath the Broncos practice fields required a confident crew with plenty of experience. "The whole team had a role to play and had to bring a 'let's get it done' attitude," Dodson says. "It had to happen quickly and it had to be done right the first time. This was a collective effort and they found a way to make it happen."



Project: Denver Broncos practice fields, Englewood, Colorado

Type of Construction: Athletic fields, renovated 2013

Scope of Project: 210,000 ft (88,200 m) of RAUPEX pipe

Mechanical Contractor: R&H Mechanical, Eagle, Colorado

Sports Field Builder: Fields, Inc., Canton, Georgia

REHAU Systems Used: Turf heating (RAUPEX® pipe, custom-fabricated headers, RAILFIX™ fixing rail), REHAU Smart Controls

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