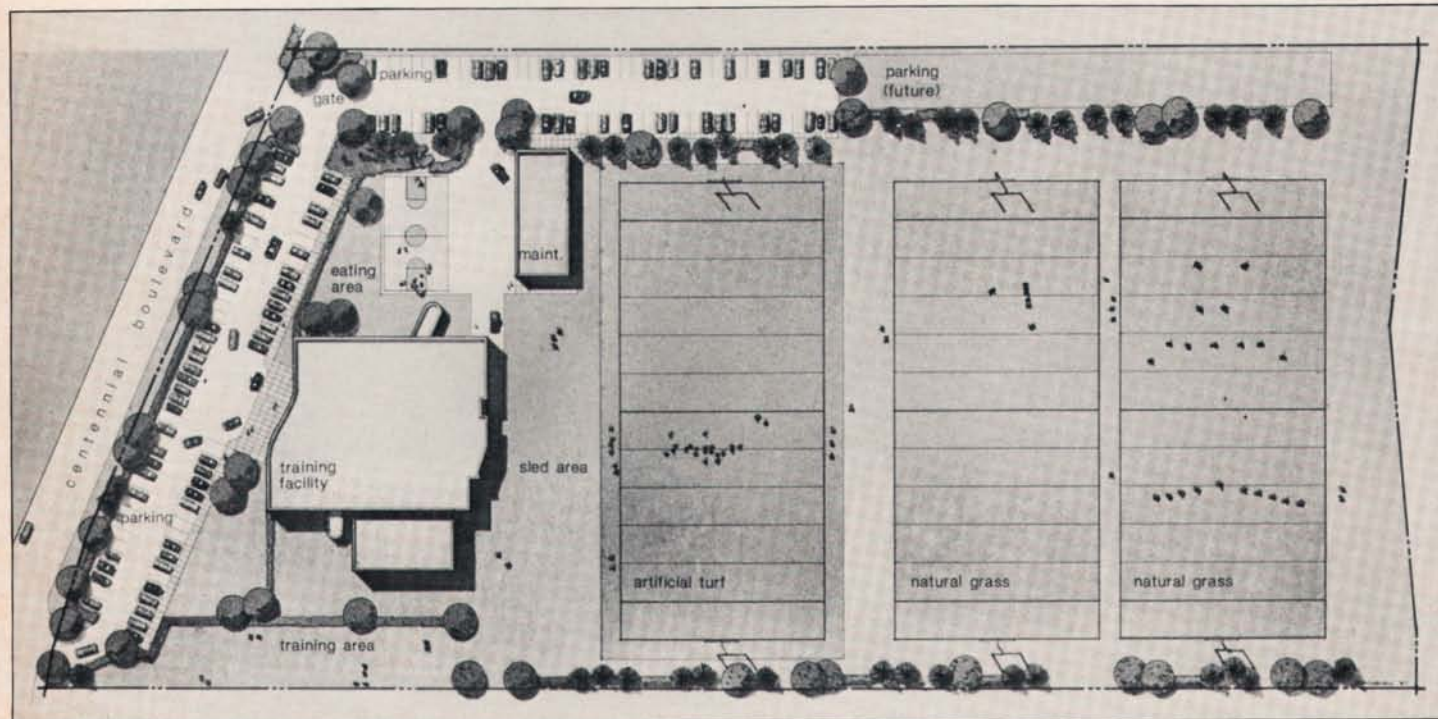


Forty Niners Set New Standard For NFL Training Centers



Layout of Marie P. DeBartolo Sports Centre. Photo courtesy: HOK Sports Facilities Group.

When a National Football League franchise wins one Super Bowl, competitors try to discover what its winning formula is. They look hardest at players, coaching and the play book. When the same team wins two Super Bowls, the formula becomes the subject of intensive analysis throughout the league.

When the San Francisco Forty Niners won its third Super Bowl of the 1980s, the world of professional football wanted to know everything about the organization, from the flavor of its PowerBurst drink to the type of drills it puts players through.

One of the most notable changes at the Forty Niners' camp last summer was its new training facility. The team worked out for the first time at the 11-acre Marie P. DeBartolo Sports Centre, in Santa Clara, CA. Edward J. DeBartolo, Jr., who purchased the team in 1977, named the complex as a tribute to his mother.

DeBartolo wanted to show his players and his coaching staff that he intended to field the best team on the best fields. For years the Forty Niners had trained on two 60-yard fields in Redwood City, CA, one natural and one artificial. The old complex just didn't fit the needs or the image of a team that was becoming a dynasty. He immediately began to explore building a complete professional training center, one that met the standards of the Youngstown, OH, based DeBartolo Corporation, a developer of upscale shopping centers and real estate developments.

When the city of Santa Clara got wind of his plans, it approached DeBartolo about developing a 11.2-acre site across the road from the new Great America Theme Park, Santa Clara Convention Center, Santa Clara Golf Course and Doubletree hotel.

"We explored building a new facility in Redwood City," recalls Norb Hecker, execu-

tive administrator of the center, "but the Santa Clara site gave us the chance to expand our thinking further. It gave us room for three fields instead of two, with plenty to spare for the headquarters and training center." Hecker is also executive assistant to Coach Bill Walsh and was a former assistant to Green Bay Packer legend Vince Lombardi.

DeBartolo spared no expense during design and construction of what has become a model for professional football training centers. He wanted an architect experienced in professional sports, one familiar with the details required, from the weight room to the surface of the fields. He chose HOK Sports Facilities Group in Kansas City, MO, designer of major stadiums and training facilities for both baseball and football.

HOK's Joel Leider worked with Lou Zarlenga, head of engineering for the

DeBartolo Corporation, to put together specifications for the training center. They included a two-story main building, a maintenance building, one artificial turf field and two natural turf fields. The main building houses the executive offices, a swimming pool, audio/visual center, cafeteria, weight room and lockers. In addition to large maintenance and storage areas, the second building includes two racquetball courts.

As construction began on the buildings, HOK turned its attention to the fields. It was clear from the beginning that there were two major factors in selection of field surfaces: water and player safety. Every effort had to be made to conserve water throughout the year and to reduce the number of injuries during training. Drainage was not a serious concern, since the area averages less than 18 inches of rainfall per year.

HOK had heard favorable reports about the surfaces at the Seattle Seahawks training complex in Kirkland, WA. The natural turf fields there are sand-based, designed by Dr. Roy Goss, extension agronomist for Washington State University. The Seahawks also installed one field of Omniturf, a carpet of artificial turf topdressed with sand.

Leider contacted Dr. Bill Daniel, co-inventor of the Prescription Athletic Turf (PAT) System, as a knowledgeable source on sand field construction. Daniel and partner Laurel Meade developed a proposal for a PAT System for the Forty Niners. The idea was to conserve water by subirrigating. The patented system automatically controls both drainage and subirrigation and utilizes vacuum to keep a field in play regardless of rainfall.

When the Forty Niners questioned whether the Santa Clara weather called for such an advanced drainage system, an alternative was suggested. In 1966, Purdue University researchers developed a sand-based system for golf greens. It was given the name Purr-wick, which stands for plastic under reservoir rootzone with wick action. This predecessor to the PAT system has some of its benefits but is totally manual and does not include a vacuum system. However, the system had never been used before for an athletic field.

"The key features of Purr-wick," explains Daniel, "are water conservation and a uniform moisture content. By controlling

drainage with a plastic barrier and valves, you conserve water in the root zone. Water will wick up in properly sized sand as much as 14 inches in 24 hours. The wicking action starts out rapidly, moving the first eight inches in 20 minutes, then slows."

At the time, Jim Eagle, a licensed PAT installer from Fort Worth, TX, was preparing for a large park project in Carson, a southern suburb of Los Angeles. "Since I would have my equipment and crew in the state," he recalls, "we could move up to the Forty Niners' training center after completing our work on Del Amo Park." The timing was right for Eagle and the Forty Niners. With 18 months to go before the opening, Eagle started making arrangements.

"I really enjoyed working with the Forty Niner organization," Eagle says. "They reminded me of the old Dallas Cowboys. They are totally dedicated to being a winning team and it shows in the way they do everything."

The first order of business was to find a source for more than 12,000 tons of dune sand and 22,000 yards of sod grown on sand. "The sand in the field had to match the sand on the sod," Eagle states. "We found a beautiful type of beach sand near

Pebble Beach. Then I started calling sod farms to see if they had sand fields where they could grow Kentucky bluegrass sod *without netting* in a year's time."

Steve Stone, from Warren's Turf Nursery in Suisun, CA, was able to satisfy Eagle's needs by custom growing a blend of four Kentucky bluegrasses at the company's farm in Manteca, CA. The four bluegrasses were Warren's own proprietary cultivars Able 1, A-34, H-7 and I-13. The fields at the Manteca farm were almost pure sand. "I was trying to avoid the problem of washing the sod before it was installed," Eagle explains.

Eagle's crew moved on site January 4, 1988 to direct excavation. The top 14 inches of soil was removed from more than 4½ acres. With the help of lasers, a flat subgrade was obtained for the entire square area. "There is not more than 1/2 inch difference in elevation in either the subgrade or the final surface," remarks Eagle.

A Purr-wick field must be flat to work properly. When it is used for golf greens, the root zone must be partitioned into sections for each six inches of grade change. If this is not done, water will move by gravity

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Genoff drags field after practices to stand turf erect before mowing.

"There's a difference between rooting and anchoring and between soil and sand. It takes months for the roots to knit together to form a tough base."

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to the lowest point, destroying the uniformity of the wicking action. A crowned athletic field would require the same type of partitioning as a golf green.

The next step was to cut shallow trenches in the subgrade for the network of perforated drain pipe. The network consists of a series of two-inch slitted tubes feeding into four-inch collector drains. Once installed, the collector drains lead to three gate valves which open to allow water out of the field or close to retain it.

Since Eagle was going to install large valve-in-head sprinklers with swing joints, he also had to provide holes in the subgrade at each head location and trenches for the irrigation mains and laterals. The Forty Niners wanted no sprinkler heads on the playing surface of the two fields. However, three heads are located between the two fields within the area of the Purr-wick system. All other heads are located on a loop outside the fields.

Everything had to be installed above the plastic barrier to assure a closed system. Once all the trenches and holes were dug, the barrier was installed to line the entire bottom and sides of the huge bathtub. "Imagine what an entire stadium field would look like covered with plastic," says Eagle. "This was three times bigger."

His crew worked from first light into the night to install the drain and irrigation lines. "We had to get the sand in quickly to keep the wind from lifting the plastic barrier," recalls Eagle. "We also had to be careful to install the sand without damaging the drain lines."

The trucks started delivering the sand at a rate of 1,500 tons per day. As the tub began to fill with 14 inches of sand, Eagle had another job to do for the Forty Niners. He promised Norb Hecker to help interview prospective turf managers for the facility. Hecker wanted to hire someone before the sod was laid.

"One day we were busy installing irrigation pipe," Eagle remembers, "and I noticed an unfamiliar face among the crew. All the other people I had interviewed went straight to the trailer and waited for me there. A little while later, this person asked one of my guys where he could find me. He turned out to be Rich Genoff, the sports turf manager from Santa Clara University, who had come to interview for the job."

Genoff started his turf career at Atlanta Country Club in Atlanta, GA. George Burgin, superintendent in the late '70s, taught Genoff the fine differences between managing turf on sand greens and clay fairways. After three years, the Bay area native returned home and was hired by a land-

scape maintenance firm to take care of the athletic fields at Santa Clara University.

The Forty Niners trained at the university before moving to Redwood City. They used the school's sand-based Buck Shaw Stadium.

In 1981, the university hired Genoff as its first superintendent of athletic fields. During seven years with the university he had managed 13 conversions between football and baseball seasons. "It was a one-man operation and I spent mega-hours making sure everything was right for the teams," he states.

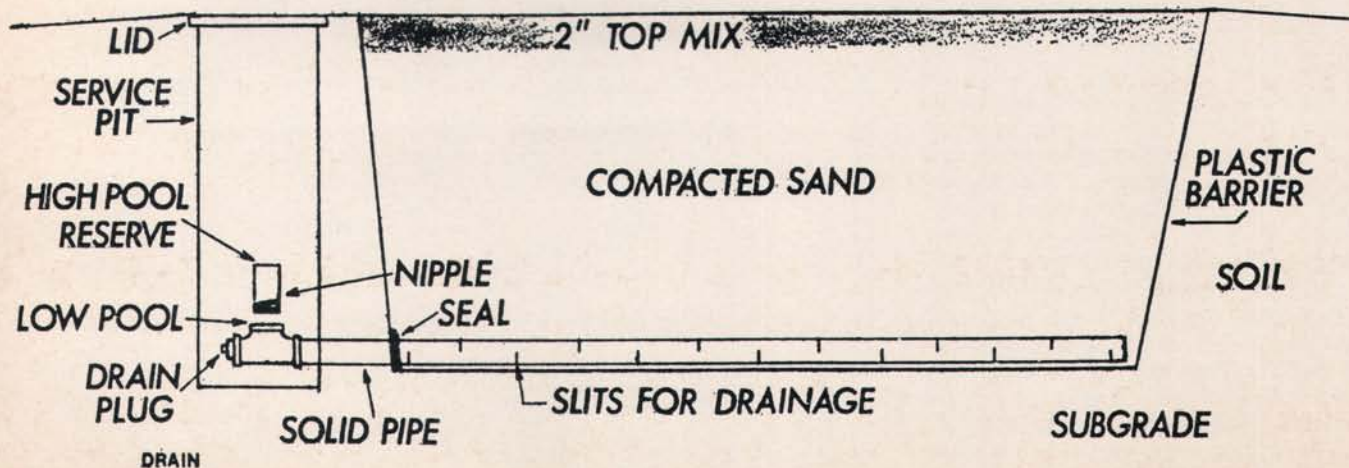
Genoff also felt strongly about the Forty Niners. When he heard the team needed a turf manager for its new training center, he had to apply. Hecker told Genoff it was a one-man job, but it didn't matter. With Hecker and Eagle's support, Genoff passed the interviews with Coach Bill Walsh and general manager John McVay.

Genoff reported to work in March. A week later he watched closely as Warren's installed the 201,000 square feet of sod on the practice fields and another 70,000 square feet on the lawn area around the buildings.

"Looking at the fields for the first time was just as great as looking at a spectacular golf course," he recalls. "I knew then and there that I wanted to remain a sports turf manager."

The training camp was scheduled to open in August. That gave Genoff the time he needed to allow the sod to become anchored. "There's a difference between rooting and anchoring," he remarks, "and between soil and sand. Just because you get the roots down eight or ten inches in sand doesn't mean the turf can't be pulled up. It takes months for the roots to knit together to form a tough base."

Genoff thinks of the practice fields as being like a hydroponic garden with the turf growing in a nutrient solution. Before the sod was laid, 20 pounds per 1,000 square feet of 6-20-20 was dragged into the sand.



Cross section of single-tier Purr-wick rootzone.

A month later he applied ten pounds per 1,000 square feet of 10-8-4 and watered it into the rootzone with the irrigation system. After another 30 days he began applying five pounds per 1,000 square feet of 21-7-14 on two-week intervals.

"The turf grows at a rate of 1/4 to 1/2 inch a day," says Genoff. He mows at one inch seven days a week with a Toro Turf Pro 84 that has three hydraulically-driven reels. "If I skip a couple of days I have to double or triple cut and sweep up the clippings to get the pattern back."

Genoff is following a preventative treatment program for pythium, fusarium, rhizoctonia and patch diseases. He begins applying Chipco 26019 in May along with either Subdue or Aliette. In areas of the fields where *Poa annua* has invaded he applies Endothall. If that doesn't control the weed, he plans to take another approach. In April he alternates Balan and Ronstar for preemergence weed control, followed later in the year with postemergence applications of Turflon. All chemicals are applied very early in the morning, when no players or staff are around.

Genoff begins some days at 4 a.m., using the headlights on his Cushman 530 Turf-Truckster to help him spray fungicides. The 100 gallon sprayer has a 16 foot boom. Later in the day he might attach a screen drag or brush to groom either the natural fields or the Omniturf. If he's not in his office, he usually can be found near the truckster loaded down with sand or tools.

In case of a break in an irrigation or drainage line, he hooks up a submersible pump to the vehicle's power converter to suck water out of the line. Then he plugs in a reciprocating saw to cut out the damaged piece of pipe. "With the power saw, I can repair a four-inch drain pipe in a few minutes," he reveals. "That same job used to take hours. The truckster is my second man."

Genoff's third piece of multi-use equipment is a John Deere 1050 tractor. To it he attaches either an Olathe drill seeder, a Lely spreader, a Ryan Tracaire aerator or a top-dresser. The final piece of equipment Genoff considers invaluable is a Bomag 130 AD 12,000 pound roller he rents to maintain a perfectly flat surface on the fields.

The training center's irrigation system is as flexible as its equipment. The above-ground system serves many valuable purposes for Genoff. In addition to irrigating the turf outside the field area, it allows him to "prime" or syringe the field surface during the summer. It is also used to water in chemicals and fertilizers.

"There are no irrigation heads on the field surface," he points out. The basic configuration is two side-by-side fields facing north and south. Half-circle heads are located on the perimeter, with one row of full circle heads between the two fields. Each Toro 690 head has a radius of 110 feet at 110 psi, provided by a PSI pump station drawing from a city water line. The turf outside the

Genoff has only had to depend upon the surface irrigation system on three or four occasions since the center opened.

field area is irrigated with Hunter Sod Cup I-40 heads. All 17 sprinklers are valve-in-head and controlled by an Irri-Trol MC Plus 12-station clock.

Because the subirrigation system has done the job so well, Genoff has only had to depend upon the surface irrigation system on three or four occasions since the sports center opened. "With the subirrigation system I can irrigate while the team is practicing without anyone knowing," he reveals.

Generally he subirrigates every two to three weeks. This is accomplished by opening three automatic supply valves in the drainage pit for an hour and a half. The

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water is distributed throughout the sand rootzone by the drain tubes. Genoff can check the water level at any time by inserting a dipstick into sleeves buried in the sand. "I know exactly how much water the turf uses," he adds, "and we don't waste a drop."

During extremely hot weather, Genoff watches for dry spots to make sure the wicking action is not upset by surface evaporation. "If I see a dry spot, I'll turn the sprinklers on early in the morning for 15 or 30 minutes to prime the wicking action between the surface and the water level in the field," he notes.

The only time Genoff has opened the drain valves was for heavy winter rainstorms. "You've got to remember that the nutrients are in the water," he warns. "The object is to conserve both water and nutrients."

One of the major advantages of the Purrwick system is the freedom it gives Genoff to take a square space and turn it into a number of different field configurations. "Since we have portable goalposts, I can actually rearrange things to provide five or more different fields," he reveals.

"I make sure the Forty Niners have the best turf possible between the hash marks all the time. We use one field at a time, switching from field to field on a weekly basis," he continues. "That gives me time to rest, repair, spike, and remark the other field." Last fall, Genoff wasn't satisfied with the center of either field, so he removed two sprinkler heads and turned both fields east to west. When the Forty Niners advanced to the Super Bowl, he removed a third head and set up a field down the middle facing north and south.

Following practice, Genoff sweeps the field used that day to remove any loose turf or debris. Before mowing, he also drags the field to lift any turf knocked down by players. "The rollers on the Turf Pro smooth out any divots or bumps," he adds. When he is finished for the day, both fields have a definite striped pattern.

During the winter, Genoff mows every other day and sweeps once a week. This past winter he core aerified, topdressed with 100 tons of lapis sand, and dragged the fields in six different directions. This March, he drill-seeded the fields with three pounds per 1,000 square feet of A-34. "When the mini-camps started last month the fields looked new again," he said proudly.

Maintaining artificial turf was new to Genoff, but he has mastered it quickly. No marking is required, since the lines, hash marks and team logo are actually colored carpet inserted into the green Omniturf.

The sand dressing on top of the carpet does need to be brushed frequently and irrigated periodically. "The Omniturf field has its own irrigation system," says Genoff. "We had a small problem with wind blowing the sand around at first, but I've got a handle on it now."

There is one other innovative section of turf Genoff and Eagle are proud of: the training track. At the request of the trainers, Eagle designed a turf area 40 yards long and 15 feet wide. It slopes 3½ degrees from end to end. Players sprint down the slope to develop greater speed, or up it to stretch tendons and muscles.

"The two natural fields next to the Omniturf field are a sight to see," he concludes. "Who wouldn't be proud to work or play here? I always keep in mind that Ed DeBartolo, John McVay, Bill Walsh or Coach Seifert can look out their windows anytime to see the fields. But I also make sure the players and trainers like it. The bottom line is championship quality turf."

As the Forty Niners prepare for another season, the Denver Broncos and Phoenix Cardinals are installing similar natural and artificial turf fields at their training centers in arid regions of the country. Turf has been recognized as a major factor in the success of professional sports franchises. At the same time, the sports turf manager is playing an increasingly vital role in the winning formula.

"Nothing beats working for a world championship organization," remarks Genoff. "It's a dream job for me!"



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