

Stadium Design



**Build it right the first
time**

by Don Dillon and Mike Lloyd

No two college stadium projects are alike. When you're starting to design a new facility, you can't simply dust off plans that worked for another stadium. Each site is unique, and you must engineer design solutions that are specific to each case.

There's no margin for error with a sports project. By nature, it's a very demanding process with high expectations, tough standards, and tight time schedules. Your finished project is instantly placed on public display, so you'd better do it right the first time.

Detailed approach

Doing it right the first time means taking a painstakingly detailed management approach to each project. Remember that people skills are just as important as securing the proper materials and contractors for the job.

The initial programming stage is essential to a project's success. It's critical that you determine what everyone is expecting, and it's just as important to know who "everyone" includes.

A major college sports project often has many indirect constituencies whose agendas may differ greatly. You need to work with the school's athletic director, because this person usually determines the budget. You should also get input from the coaches, since their players will be the ultimate judges of the quality of the new field.

Projects must also conform to the school's Planning and Construction



There's no margin for error with a sports project. With high expectations and tight time schedules, you'd better do it right the first time.

Courtesy: CMX Group

Department guidelines, to its traditions and history, to the existing stadium's design and utility structure, and to the overall goal of the administrators. Basically, it's a good idea to talk to everyone.

General guidelines

Contractors need to get down and dirty on stadium turf projects long before the first shovel ever hits the ground. The following are a few general guidelines:

- First, find out exactly what the client wants.
- Determine the project's various constituencies, and establish a system of effective written and verbal communications to eliminate any potential surprises.
- Develop a realistic project budget with realistic cost estimates. Use local contractors and subconsultants to properly quantify those estimates.
- Treat each project as a unique entity. Involve local architects, planners, and landscape managers. Select only those materials that match the project's location and climate. Establish local testing protocols.

A company's versatility can be a major asset to stadium projects. It's best if a firm can do it all: design, engineer, and project manage.



Natural Springs under the stands at Berkeley's Memorial Stadium created a particular challenge.

Courtesy: CMX Group

From root zones to irrigation

While most of our stadium projects have been college facilities, our first major field installation was contracted by the Arizona Cardinals. The City of Tempe had helped fund a new, \$12-million, state-of-the-art NFL training facility as an incentive for the Cardinals to move from St. Louis. We came in to oversee the project, which included installation of three full-length, grass practice fields.

The Cardinals insisted on attention to detail. For instance, the organization requested that the three practice fields be built on the same north-south axis as Arizona State University's Sun Devil Stadium, where the team plays its home games.



A specially designed drainage system and lime treatments helped keep the Berkeley project on schedule. *Courtesy: CMX Group*

Overcoming obstacles

We faced a particular challenge when California-Berkeley brought us in to help convert its football field at Memorial Stadium back to grass from artificial turf. We knew going in that Strawberry Creek ran through a drainage structure under the stadium.

In the information-gathering stage, we looked at the stadium's "as-built" records,

which dated back to the 1920s. We brought in local expertise, and took soil borings for pre-evaluation and analysis.

During our geotechnical soils testing, we discovered that there were natural springs under the stands. These would likely empty into the lowered playing field area during construction, so we needed to address the situation immediately.

We designed a drainage system to intercept the water, and then used a special lime treatment to stabilize the soil

under the stadium. These procedures became even more necessary when heavier than normal winter rains kept the local water table high and the stadium soil very moist. If we hadn't addressed the uniqueness of the project early on, it would not have been completed on schedule.

Sports projects are intense, highly-visible endeavors with tight budgets and even tighter time schedules. There's constant media scrutiny and no margin for error.

It's never easy, but by starting with a firm foundation and developing contingency plans, it can be most exciting and satisfying. □

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It was a great experience. The review and communication process was intense and constant. Our plans needed to be extremely precise. The Cardinals remained involved in all phases of the field installation, from setting the root-zone specifications to incorporating a unique subsurface irrigation system.

The results speak for themselves. The fields have held up exceptionally well, and the training facility still ranks as one of the best in the NFL.

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