

Builder, beware what you're buying

Continued from page 1

labs have been left trembling in financial fear. The entire golf industry is taking steps to curb faulty construction. Early and frequent soil testing is key.

"It's prudent and the industry has not been doing it, and it is catching up with them," said Steve MacWilliams, vice president of Turf Diagnostics and Design in Olathe, Kan. "It's almost negligent if you don't do quality control. Architects are making out checks with their clients' money. Whether they feel they have the best supplier in the world and they are working with all top-quality companies, they still have to do it.

"It's not a reflection on anyone in the process as much as that Murphy's Law dictates."

"All the major architects are testing [materials]," said architect and builder Rees Jones.

Perhaps none are testing as meticulously as Bob Cupp, whose staff agronomist, Billy Fuller, sees that every truckload of sand is perc-tested and full soil tests run throughout a project.

Obtaining material that meets rigid specifications should not be difficult, especially with the recent growth of specialized soil blending companies.

"We're not talking 'art' here," Cupp said. "We're talking high-tech soil blending. And we're just barely approaching the same types of consistency requirements as the AIA [American Institute of Architecture] specifies for structural support."

Inconsistency is usually the fault of the sand supplier, Cupp said. "Normally speaking, it's a loose operation that some sandpit owner delivers. Now, thanks to litigation, the contractors know it had better be right."

That the delivered sand differs from preliminary lab tests, and even from one truckload to the next, can be attributed to nature and to the fact the supplier may be working in a different spot than when he provided the sample to the lab.

"There are a lot of reasons for a change in the sand," said architect Michael Hurdzan of Columbus, Ohio. "Sand changes in the vein. The washing operations may be done differently. The shaker apparatus may wear out or not be as efficient.

"Also, we order 10,000 or 12,000 tons of sand for an 18-hole golf course. As long as a pit is meeting specs for big contractors, a lot of them [suppliers] are not going to worry about us little guys."

Hurdzan also pointed to the addition of organic matter to sand as "multiplying the potential for complications. Organic matter is even more variable — in weight, moisture, carbon-nitrogen ratio, amount of organic matter to ash, even the decomposition state of it," he said. "All of that influences the performance properties... Peat actually decomposes in the mix

pile. If it sits in the pile for a month or two, it may change from 80-20 [sand-to-peat blend] to 90-10 or 92-8."

Watkins slammed home the quality-control discrepancy. "Sports field owners and architects are much, much more demanding and technical and expect a whole lot more than nearly all golf courses," he said.

Who performs quality control varies from job to job. It can be a Hummel or Watkins. The developer can hire a maintenance

superintendent to control such tests. The contractor can depend on labs alone to check root-zone materials. Blenders should test the mix at intervals throughout a work day.

Watkins suggested testing all sand before peat or other organic matter is added. MacWilliams recommended checking the sandpit itself "because you don't have back-haul considerations."

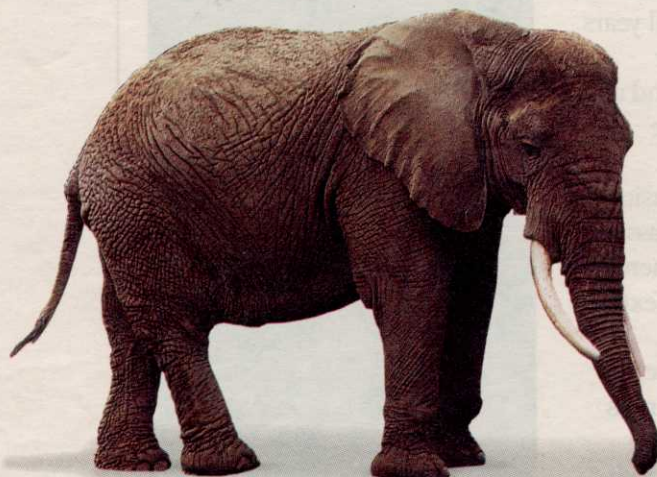
"Contractors should work with a lab in the mix development — in

Continued on next page

QC cost minimal in overall scheme

What does a quality-control program cost? "Typically, the average cost for one hole is \$15,000, including irrigation, dirt work, etc.," said Glen Watkins, president of Root Zone Mix. "So \$15,000 times 18 or 19 holes equals quite a bit of money. The cost to know you're getting what you're supposed to be getting is insignificant." A quality-control person costs about \$1 per ton for mix, he said. Turf Diagnostics and Design's Steve MacWilliams said testing — to confirm sand fractions and organic content of the mix — costs \$115 per sample for every 1,000 tons. Assuming 10,000 to 12,000 tons of sand for a golf course, that equals \$1,500 to \$2,000, he said, or 2-1/2 cents per square foot on the green.

Saying he has known instances when bad materials were delivered "inadvertently, but never intentionally," Wadsworth Golf Construction Co. President Paul Eldredge said: "It's a major problem if it happens, because it costs a couple hundred thousand dollars. That once when it does happen is the one everybody talks about. It's like the murder down the street."



The charge of Hannibal from Spain over the Alps into Italy set off a series of crushing defeats on Roman armies. Elephants helped power Hannibal's army over treacherous mountain terrain.

218 B.C.



The Charge of the Light Brigade during the Crimean War checked Russia's ambitions in Eastern Europe. The battle was immortalized by Alfred Lord Tennyson in the poem, "The Charge of the Light Brigade."

1854

Charges that changed



The next historic charge is up to you. Lead it on your golf course with the all-electric E-Plex™ greens mower. The revolutionary E-Plex operates emissions free and noise free. Say goodbye to turf damage due to hydraulic leaks. To complaints about noise. To pollution. To costly maintenance and repairs.

What do you sacrifice to enjoy all the benefits of the latest technology? Absolutely nothing. The E-Plex provides an exceptional quality of cut, maneuverability and performance*. You can actually increase your revenue with the E-Plex. Because you can mow earlier, you can start tee times earlier for additional rounds of golf.