

Green Construction — Techniques and Materials

by JAMES L. HOLMES, Midwestern Agronomist, USGA Green Section

The method and specification for the construction of a putting green recommended by the USGA Green Section have been available and in practice for 10 years.

Many individual greens on numerous courses have been installed accordingly, and new course green construction is tending in this direction. A few architects insist that all greens they design be built following these specifications. This trend is growing, also.

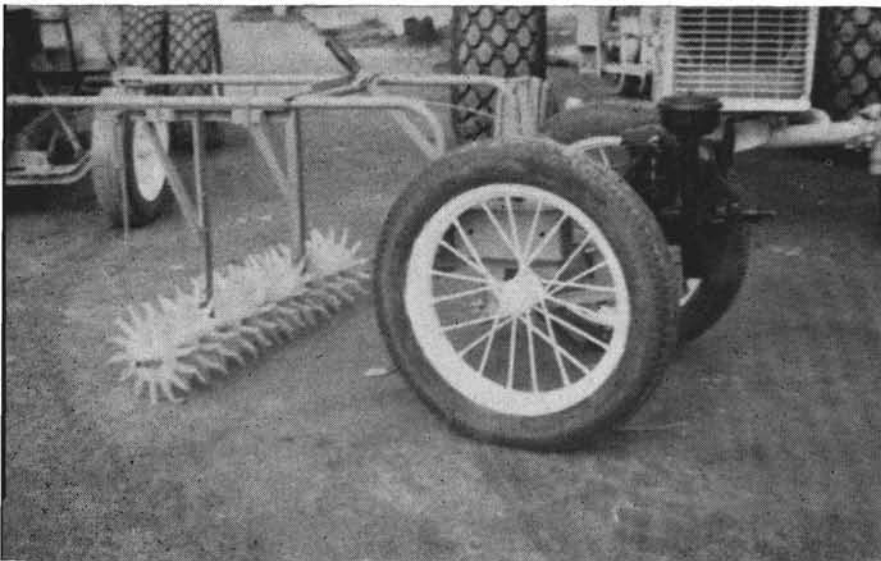
One outstanding advantage of such specifications is that they are the only specifications available which spell out exacting physical requirements. With this advantage, physical properties can be checked to determine if specified procedures have been followed during construction. This should be, and can be, extremely useful to architects and those providing the money to construct greens.

We are all aware that green behavior can vary widely following guess-work soil mixture-construction. Rarely are two greens built alike, and rarely do they behave similarly when guess-work methods are used.

Other advantages of greens built according to USGA Green Section specifications are:

1. They will perform in a predictable fashion, and all such greens will behave similarly.
2. They can be played following heavy rains or excessive irrigation.
3. The putting quality is more nearly uniform all day long and all year long.
4. Uniform air-water relationships, or assured presence of adequate soil air, encourage deeper rooting and healthier turf.
5. Less overall soil compaction.
6. A tendency for less severe turf disease activity.
7. These specifications offer the distinct advantage of obtaining proof that greens are built according to a set standard if the contractor agrees to construct accordingly.

Now that we have observed and lived with greens built to specifications for 10 years, prob-



Spiking is important to the welfare of greens.

lems with such greens can be determined or anticipated. Certainly we are aware that the absolutely perfect green has not been devised, and because of the characteristics of Nature and golfers, no such green will ever be built.

Simply, we are striving to reduce as many ills and satisfy as many golfers as possible. Even though this is a significant breakthrough in green construction, we hope for additions or improvements in the future.

Problems to anticipate are:

1. Specification greens must be built exactly — **with no variations**. This makes them relatively difficult to build.
2. The topsoil must be uniformly and homogeneously mixed off site. This can be expensive, but certainly no more so than some architects charge for non-specification greens.
3. Often it is difficult to locate the most suitable sand. A medium grade or mason sand with less than 10 per cent fines or silt is necessary. Silica sand is superior to calcium carbonate.
4. Seeded or stolonized putting surfaces must be **kept moist constantly** until roots have penetrated to a depth of at least one inch.
5. More plant nutrients are needed for the first few years.

6. Specification greens **must** be topdressed with material **exactly** identical to the soil mix used in construction. Exacting methods of construction and topdressing must be followed at all times — this can be a problem for the sloppy builder and the careless superintendent.

Certainly, we are not naive enough to suppose that all future greens will be built according to specifications, or that most greens constructed in the past even come close to meeting these specifications. Further, many old greens have supported excellent putting surfaces for decades. Other methods of building are largely left up to the builder or contractor, and every conceivable type of soil mix is used.

It seems that a one-part soil, one-part sand, one-part peat conglomeration has performed quite satisfactorily, even though rarely does anyone make any effort to define or determine just what sand, soil and peat actually are. Further, many greens made from strictly native (on the site) soil have performed adequately, as long as rapid and sufficient surface drainage is afforded.

With increasing and excessive demand, both from traffic and for putting qualities, improved building procedures are becoming essential. The specification for putting green construction as developed by the USGA Green Section is a giant step in this direction.

Soil Physics and Green Construction

by HOLMAN M. GRIFFIN, Northeastern Agronomist, USGA Green Section

It appears that we of the Northeastern Green Section Staff must do more to convince anyone building a golf course that the Green Section specifications for the construction of putting greens must be followed EXACTLY.

Many greens have been started with the idea of making them exactly according to the Green Section specifications, but, most often, some charges were made, and at present there are only 18 of these greens in the area east of Ohio and north of the Carolinas.

Some common reasons offered for not follow-

ing through with the specifications are:

- (1) We didn't have time for a soil analysis.
- (2) We made some changes to cut expenses.
- (3) We had to sod with whatever was available to get the green in play. And so on ad infinitum.

Well, we get pretty tired of hearing things like, "These greens are built exactly according to USGA specifications except for . . .," and then comes the clincher about leaving out the sand layer or modifying the soil mix or some other such thing which completely changes the