

# GREENS CONSTRUCTION

By HUBERT E. (AL) FRENETTE

As turf management personnel, your duties may, at some time, include the construction of greens. Should this happen, you must be prepared to become completely involved. You must also be prepared to assume responsibility for any failures, as all future problems will be laid at the doorstep of the Superintendent. Any superintendent who does not believe this should never involve himself in the construction of greens.

Good putting surfaces require no special formula or magic touch. They are the result of:

1. Proper Design
2. Proper Construction
3. Proper Maintenance

On occasion, we have seen excellent putting surfaces that appear to have none of these qualities. Apparent or not, they exist.

The proper design of the green(s) should be the job of a competent architect. The responsible superintendent will insure that he has a say in the selection of the architect. It is absolutely necessary that these two individuals have the mutual respect of one for the other if the club is to get what they paid for in good faith.

Construction of the greens requires good planning and a knowledge of fundamental construction procedures. Whether you contract the job or utilize club personnel, this planning and procedure should follow a sequence such as:

1. Specifications — To date, no has come up with a better way to construct consistently good putting surfaces than to use the specifications developed by the USGA Green Section. Other methods have been developed and used with varying degrees of success. When built to specifications, there are (to my knowledge) no recorded failures of "USGA Green".

Insist on a good set of specifications and, if necessary, contact your USGA representative for assistance in preparing these specs. They will protect the integrity of your greens and may protect you in possible future litigations.

2. Materials Testing — Collect samples of all locally available materials and get a complete test of these from the USGA testing lab. It has been this author's experience that random tests by independent labs, contractor's lab or other agencies are not adequate to give you an acceptable seedbed. Your USGA lab is equipped to perform all the necessary tests to evaluate your materials and make sound recommendations.

Once the recommended materials have been mixed, additional samples should be gathered and retested to insure the mix is as recommended.



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Remember one important thing about testing; the cost is nothing compared to rebuilding.

3. Materials Purchasing — Following selection of the materials, the next step is contracting for their purchase and delivery. The contract should include unit price, delivery charges, on-site inspection of quantities delivered, delivery schedules, payment schedule, and time limits.

The most single important item for the superintendent to check is the on-site inspection of quantities delivered. If anything will come back to haunt you, this item will. Many clubs end up paying extra for materials because they did not have a handle on this operation.

The actual construction of greens should follow accepted procedures. There are ample instructions from the USGA regarding the steps to follow in the building of the green. Rather than belabor these procedures, let us look at some of the mistakes that you will want to avoid:



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1. Personal Supervision —

Check every aspect of the job yourself. Do not leave details to anyone and inspect every phase before it is buried. Absolute observance of this rule will save you a lot of embarrassment later.

2. Specifications —

Do not, under any circumstances, change the specifications without written approval from the architect or owner. Insist on having all changes in writing and keep them on file.

3. Materials —

All material changes should be approved by the architect in writing.

New materials should be tested in the lab before they are placed on the job.

4. Construction —

Attention to certain details is a good way to avoid later problems.

a. Base or Subgrade — Grade the base to the same contours as the finished grade.

b. Drains — Run all interceptor trenches perpendicular to the natural grade.

Insure that the base is graded to allow water into the trenches.

Carry all drains to a creek, ditch, or solid drain pipe. You will have to do it some day anyway.

c. Gravel — Be certain to maintain the rule of 7 diameters. Failure to do so will result in possible failure of the perched water table.

Maintain the proper contours with the aid of a depth gauge.

d. Sand — If specified, carefully place this layer to avoid mixing with the gravel blanket.

Maintain the proper contours and depth.

e. Seedbed — Off-site mixing of materials is preferred. When loading for delivery to the green, keep a minimum of 6" on the ground to avoid contamination. A paved area will eliminate this problem.

Keep a minimum of 8" of material under your wheels or tracks while spreading. This will prevent mixing of the seedbed with the course sand and gravel layers. Keep the mix free of all foreign materials.

If amendments are to be added, till them to a depth of at least 5".

To insure a good stand of turf, insist on fumigation of the seedbed.

Use a tracked vehicle to firm the seedbed prior to a final contouring.

Use a depth gauge to maintain proper contours and avoid differences in the depth over the entire green and collar. Differences could cause moisture variations in stress periods. Allow ample area for a collar of about 36" width.

Float the surface to remove irregularities and to eliminate excessive topdressing after turf establishments.

The seedbed, at this point, should be firm enough to resist foot printing.

f. Irrigation — Keep all pipes and sprinklers outside the seedbed area, including the collar.

Keep all controls and valves outside the maximum radius of the sprinklers. Provide proper access to the valves and wire connections.



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Provide a manual valve and coupler for each green. Leaving the coupler live will allow watering in emergencies.

Avoid excessive coverage of the green area. A maximum of 120 gpm with 100% overlap should suffice.

- g. Planting — Hydro-mulch appears to be the most satisfactory method of applying seed or stolons to the surface.

Avoid excessive rates to prevent excess mortality rates. Rates of 1-1½ lbs. seed or 8-10 bu. stolons per 1000 appear to be quite adequate.

Use controlled watering during germination periods to control seed rot or drying.

Mow the new turf at the earliest possible date. Start the mowing at about 3/8".

As you may note, no recommendations are made for fertilizers or chemical applications. Starter fertilizers should be included in the specs. And chemicals may or may not be included. Your own good judgment should determine these requirements.

Let me sign off with this one thought:  
"When the smoke clears and the architect and contractor have been paid and are gone; you, the Superintendent, will answer for all the mistakes that were made during the construction of the greens."

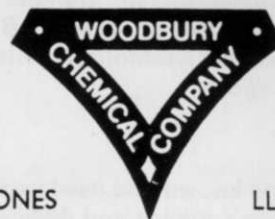
**EDITOR'S NOTE:**

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