



A modern golf course makes maximum use of available land. Note the use of water hazards around fairway seven. In addition, the plan has enhanced the difficulty of the course by the judicious use of trees on the outside of dog legs. This course is the Foothills Golf Course, Lakewood, Colo. Inset shows player at the number one tee.

# WHAT A GOLF COURSE SHOULD BE

## Contractor Cites Building and Remodeling Trends

By **RICHARD M. PHELPS**  
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**N**O two golf courses are alike. Each is a unique combination of a particular site, its environment and man's ideas of what a golf course should be.

Golf is a battle with nature and self, within a set of man-made rules. An infinite combination of shots required to play a given course, exists. Thus, the definition of what makes a golf course, aside from 9 or 18 tees and cups, gives an architect considerable latitude.

Any comments about trends in design, or how to improve older courses, can only be general. There is no perfect golf course. The best, or what some people label "champion-

ship" layouts, probably fit this definition: *A golf course which by means of its design and standard of maintenance fairly tests the judgment of golfers of all degrees of skill and their ability to execute expertly all the various shots required in the game.*

Notice that this definition says nothing about length or difficulty. It does emphasize, however, the need for skill and judgment by architect, superintendent and player. The best golf courses are challenging and fun for all players, not just the experts.

Many new golf courses are still being built. Earlier this year the National Golf Foundation reported 290 new golf courses or additions to existing facilities in some stage of construction. (See p. 18, WTT, Jan. 1972) The boom of the 1960's has

slowed only a little. For the country, 3,229 new courses and 720 additions to operating courses opened for play in the past decade. As an example of one of the fastest-growth states Colorado has 113 courses, 12 opened in 1971, and about 20 more under construction.

While it is impractical to compare courses as to construction, layout and difficulty, an architect frequently analyzes trends in courses much like an agricultural economist views the livestock market. Here is what we see developing in new golf course design and development.

*More flexibility in length and/or shorter (executive) courses.* More than 20 percent of the new municipal courses that opened in 1971 were par-3 or executive layouts. Shorter

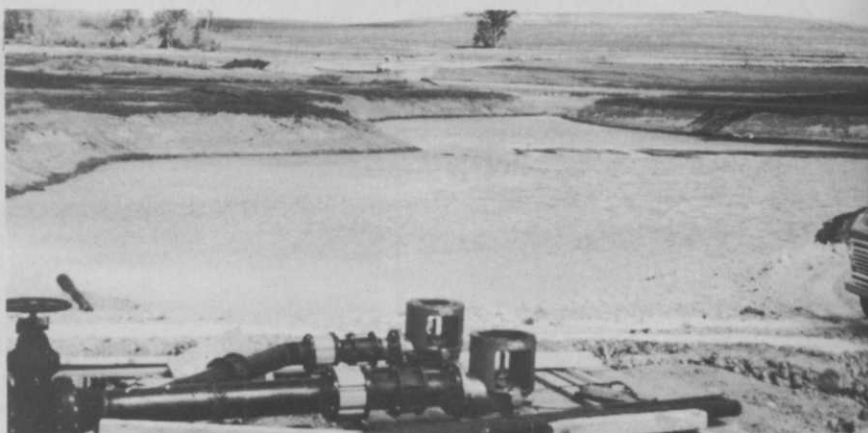
(continued on page 36)

## GOLF COURSE (from page 16)

courses are usually less expensive to build and maintain. Less land is needed, meaning lower initial expense in acquisition. In addition, a smaller area can leave room for other facilities, either park areas if municipal or living units if a private or resort development. Such a course will appeal to more players of all abilities.

*More use of water hazards for irrigation water storage and course strategy.* Architects and golf superintendents find that this dual role of water decreases initial investment and maintenance costs. Irrigation water is increasing in importance and a ready supply insures use when needed. At the same time, we are building fewer sand traps, to speed up play. This again lowers maintenance costs.

*More combination golf course and residential or resort developments.* People like to live around golf courses, for access and beautiful scenery. About 40 percent of all new courses being built are of this type. In addition, the Bureau of Outdoor Recreation (U.S. Department of Interior) has made available \$255 million for grants to states and their cities and counties under the Land



Irrigation potential and water hazard were taken into account during the construction of the lake at the Foothills Golf Course. Large pumps capable of handling many thousands of gallons of irrigation water daily were installed.

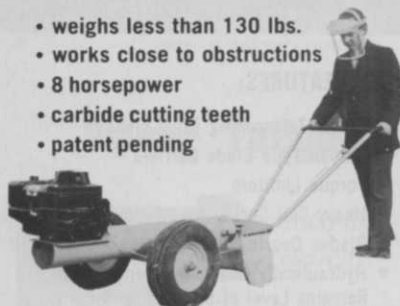
and Water Conservation Fund for development of public outdoor recreation areas and facilities including golf courses. Importance is attached to areas where concentrations of people live. A combination golf course and residential or resort complex could qualify for these Federal funds to be matched by the individual states. Such developments require good planning coordination between the golf course architect, residential area planner and owner. We must be sure to leave safety

space between golf holes and private property. Often the end result is that the golf course superintendent takes on the larger responsibility of watching over the total development.

*More automation and wider coverage by irrigation systems.* These modern underground irrigation systems are often the difference between a barren site and a beautiful, green course. But as these systems are asked to do more, the cost goes up. The demands on the water source  
(continued on page 42)

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## GOLF COURSE (from page 36)

and pumps increase, too. In some water-short areas, golf courses are using recycled, treated sewage effluent. Most have proved successful. More automation dictates that the superintendent must know virtually everything about hydraulics, water requirements of turf and programming via clocks.

*More consideration of maintenance problems during design.* Architects are aware of increasing maintenance costs. Good design assumes the superintendent will use large mowing machines and minimize hand work. This means a minimum of steep slopes and odd-shaped hazards, drainage patterns that work, and careful selection and spacing of plants and ornamentals.

Money has been the major motivator of all these trends. Golf courses are getting more and more expensive to build. Costs of construction have increased an average of eight percent a year over the past five years. That's why all the courses being built in Colorado are either municipal, financed by bond issues and backed by taxes, part of planned residential communities and resorts, or financed by land sales.

Nearly half of the present 10,500

golf courses in the U.S. were built before World War II. When we talk about older courses, there are few that couldn't be improved to make them more interesting to play and easier to maintain. Many are worn out, too short for today's longer hitters, or were designed by amateurs who a quarter century ago didn't know much about the game. Yet, much has been learned in the past few years and this is currently being applied to many of the older courses. Here are some trends we see in re-

modeling older courses:

1. The addition of 9 more holes to an existing 9 or 18 to handle increased play. The criteria often used by greens committees and architects are whether there is enough market to justify more facilities, and whether there is adjoining land space available. With a growing number of golfers, nearly every metropolitan course could utilize more holes.

(continued on page 56)



Water plays an important role in keeping greens, tees and fairways in shape. Older courses with antiquated irrigation are trading up to larger systems. Newer courses are designed with heavy-duty systems capable of delivering water to every part of the course.

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## GOLF COURSE (from page 42)

2. Adding to and/or replacement of an inadequate manual irrigation system. Golfers demand high quality turf, which has created a market for better and more irrigation equipment. Most courses "trade up" to automatic systems when they need to replace an old system.
3. Rebuilding an/or enlargement of small or worn-out greens and tees. Some old courses were not designed or built properly. Time and increased play have compacted soils.

Increased use has worn-out turf. Few public courses old or new have large enough tees or greens with enough cup areas to permit good rotation during constant, heavy play.

4. Improvement of drainage by reconstruction and/or slit trenches (French drains). In dry climates such as in parts of Colorado, wall-to-wall irrigation systems create situations where much water falls daily on our golf courses. It has to drain somewhere. On clay soils, this water stands and causes

turf problems. It also interferes with the golfer's game. Slit trenches have been used to solve the problem on some courses. On others, major remodeling with design that considers total drainage is the best answer.

5. Creation of a long-range planting plan to remove and replace undesirable vegetation and generally improve appearance and play of wide-open courses. Trees are living things and have a life cycle. Any golf course, old or new, needs a long-range planting plan that can guide the superintendent in his course improvement program.

An experienced golfer or superintendent can probably find faults on his own course. Some are easily corrected; some will require major construction. Here are examples to consider:

**Problem:** Distance from tee to dogleg corner too far (more than 225 yards) or too near (under 175 yards) to tee.  
**Solution:** Move tee so tee shot requirement is 175-225 yards for men, 150-200 yards for women, and/or lengthen fairway elbow area.

**Problem:** Not enough safety space between greens and following tees.  
**Solution:** Move tee areas to one side or ahead to allow greater spacing from previous green, and/or to shorten hole.

**Problem:** Greens all too much alike, or too flat for good drainage or too small.  
**Solution:** Redesign and rebuild new greens with variety of shapes and sizes according to shot requirements, allowing good drainage and several cupping areas.

**Problem:** Severe slopes on edges or across middle of some greens, making putting unfair and maintenance difficult.  
**Solution:** Strip sod, flatten base contours and replace sod.

**Problem:** No separate tees areas for women, making course play long and too difficult for them.  
**Solution:** Review playing yardages vs. difficulty and women's par on each hole, then design and build separate ladies tee areas.

**Problem:** Blind or severely-sloped tee shot landing areas.  
**Solution:** Re-grading of knobs to make landing zones visible, and reasonably level to hit to and from.

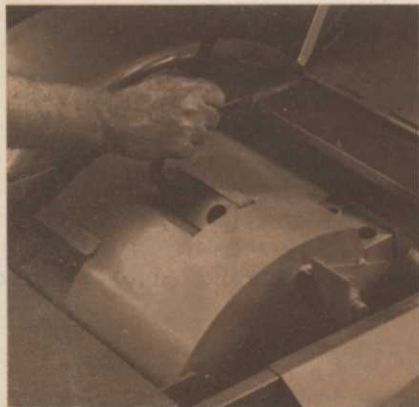
Each course has its own unique problems. Some are inherent in the site; most are caused by what man did to the site. But what man did wrong, he can usually improve, with courage, knowhow and money.

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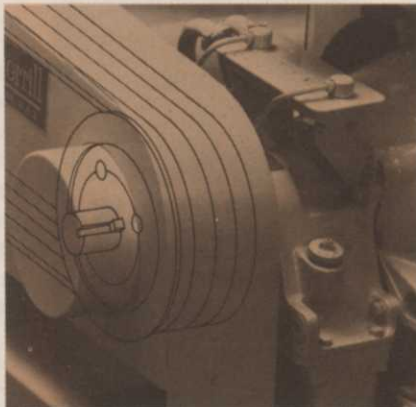
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