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EVERYONE these days is looking back at the 60s and reviewing the accomplishments in a particular field. Let's see how far we've come and what we have learned about golf course irrigation.

While industrial plants and home lawns were watered automatically in almost every instance, the spring of 1960 found the golf courses watering with quick coupling sprinklers if they had an up-to-date system and others using hundreds of feet of hose.

Cost of installation was of only relative importance. The real reason for so few automatics in the early 60s was the reluctance of the superintendent to trust his watering to anyone but faithful old Joe, the night watering man.

Well, old Joe is gone, wages are up, people don't want to work at night, so now the superintendent asks, "maybe I should look into automatic control of my watering program." In addition to replacing old Joe, he'll get variable timing over the whole course, multiple light waterings for the hard to penetrate areas, automatic or manual syringe cycles, automatic rain cut off and no more chance to blame some loss of turf on a poor irrigation system.

So, to sum up the 60s we have had some advances in the hardware of automatic control. The sprinklers have been improved, automatic valves are better, automatic controllers are so reliable that you can almost forget about maintenance. Engineering designs are really ahead of the equipment available. The end of the 60s saw central programming designed into almost every new installation. From the superintendent's office, he can handle the irrigation of the entire course. Really, what we accomplished in the 60s was the realization that a golf course can be watered using an automatic, easily adjusted program.

What lies ahead for the 70s? Plenty of research. We still don't know how often to water and how much to apply. Most superintendents are watering by using their judgment, based on experience and not supported by any technical input. Here we have \$150,000 worth of sophisticated equipment and the superintendent still has to look at the turf, look at the sky and guess "it looks like 30 minutes per station would do the trick tonight."

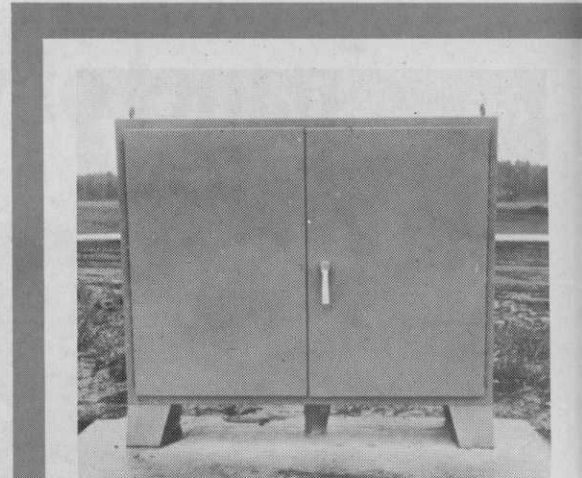
Among other things, for any given course the amount and frequency of water required depends on soil mois-

ture level, rate of evap-transpiration, wind speed and direction, length of day, amount of sunlight or cloud cover, relative humidity, soil and air temperature and weather forecast for next 24 hours.

Each time the superintendent decides to water, he has to evaluate all of these factors. Most superintendents are very capable but to analyze eight or more variables and remember the relationship of each variable to the water required for his grass, is too much to ask of anyone.

Why not have a digital computer receive the input of the various sensing instruments and then control the watering time based on the analysis of all variable factors. These computers are now leased by some clubs and, if not, are available on a time-sharing basis in most larger metropolitan centers.

Again, our hardware is ahead of

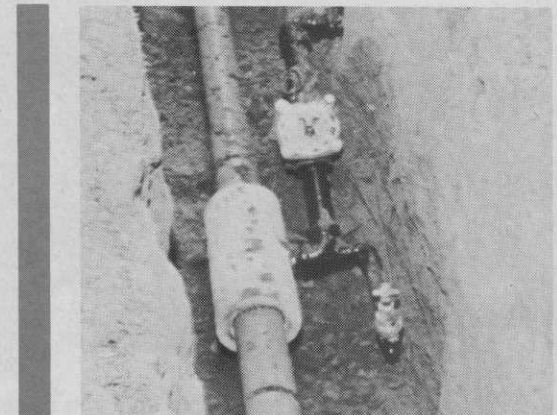


This National Electrical Manufacturers Association specification cabinet provides an attractive as well as functional housing for irrigation controller units. It gives weather and vandalism protection. It's equipped with a ground rod.

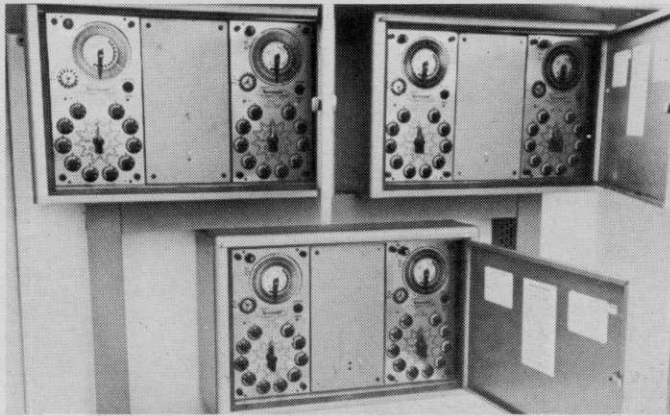
Golf Course Irrigation: **GOOD IDEAS**

our software, or program. Even if we know that the soil moisture is at the 47% level, wind 6 mph from s.w., 14 hours daylight with 60% sun, average 51% relative humidity, average temperature 76 degrees and forecast for tomorrow to be same with 10% chance of rain, the superintendent still can't say exactly how much water to apply, knowing his grass and soil type and management level desired.

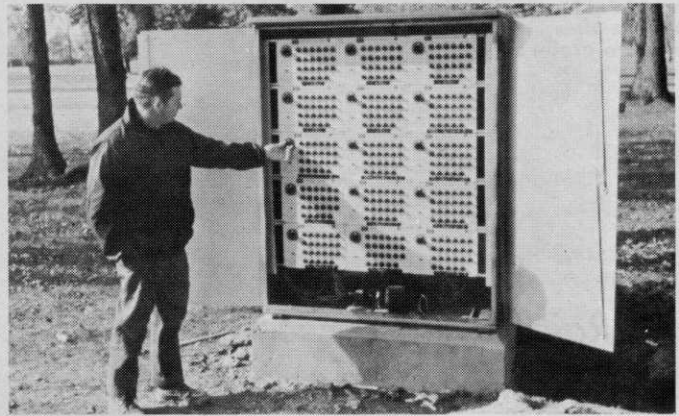
For those superintendents who are the serious leaders, I suggest you start recording some or all of the data listed above and then record the response of your turf, together with the amount of water applied. You'll be assembling valuable data for later design of your automatic watering program, and in the meantime, will be giving your head a good workout while using it as a low-cost computer.



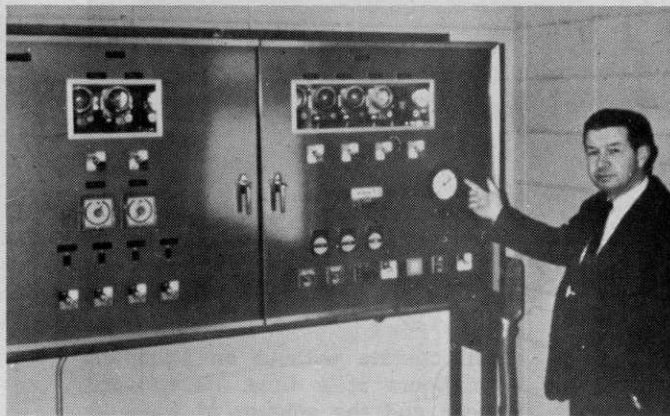
PVC pipe installed in 80-90 degree weather in a 400-yd fairway may shrink 24 inches when the temperature drops to freezing. A rubber ring joint accommodates expansion or contraction, relieving stress that could cause line rupture and repair costs multiple times above the coupler price.



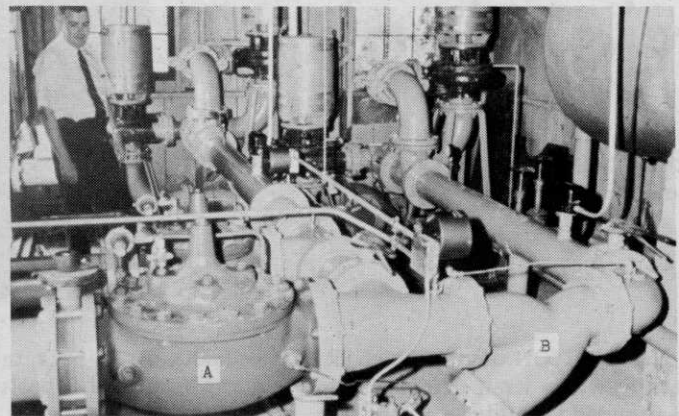
Three or four Rainmaster controllers—or similar products—will fit snugly inside the electrical cabinet shown at left. The system here has separate clocks for greens, tees and fairways. More than 65 wires are coming into this unit. Field controller installations can easily be blended in with the course through proper landscaping.



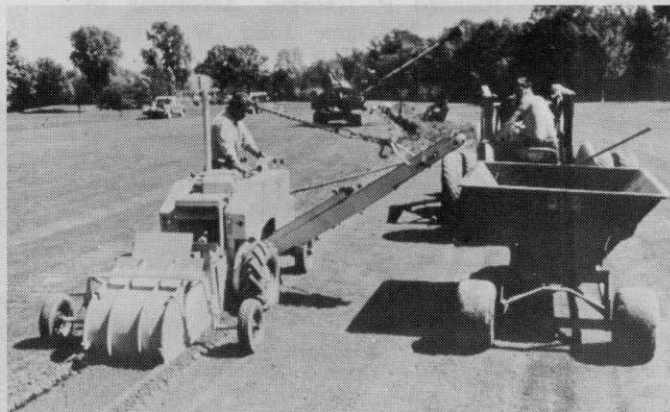
Bob-O-Link Country Club at Highland Park, Ill., is using this larger, more sophisticated field controller installation. This unit provides one program for fairways and approaches, four preset programs for greens, and four preset programs for tees. Bob-O-Link also has telephone contact between field stations and the superintendent's office.



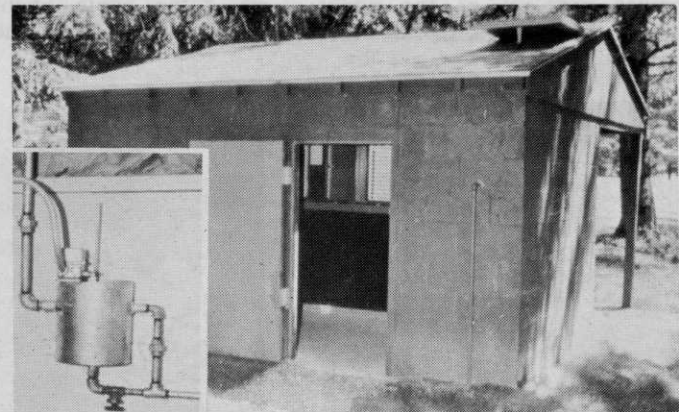
Robert Williams, superintendent at Bob-O-Link, points to the central program unit that operates his field controllers. This system provides automatic or manual start, individually, for greens, tees, fairways and approaches for both the irrigation and syringe cycles. The unit has a series of red alarms to indicate malfunctions.



Clean water at a constant pressure is a necessity for trouble-free golf course irrigation. Oak Hill Country Club, Rochester, N.Y., obtains these requirements with a pressure regulating valve (A) and a Y-type strainer (B). The strainer features an automatic blow-off to remove collected contaminants.



This trench cleaner is a modified footing digger, made by Arps Mfg. Co., New Holstein, Wis. It prepares the trench with a one-inch depression to allow for the replacing of sod. Excess dirt is augered into the wagon. Used with a backhoe and tamping unit, the trencher enables replacement of sod in less than three hours.



A field control house serves the double purpose of housing irrigation controllers and as a shelter for golfers. The house at Oak Hill Country Club features a rain gauge on the roof that operates an automatic shutoff (inset) for the sprinkler system. The unit is adjustable from .15 inch of rain. It shuts off system and returns controllers to start position.