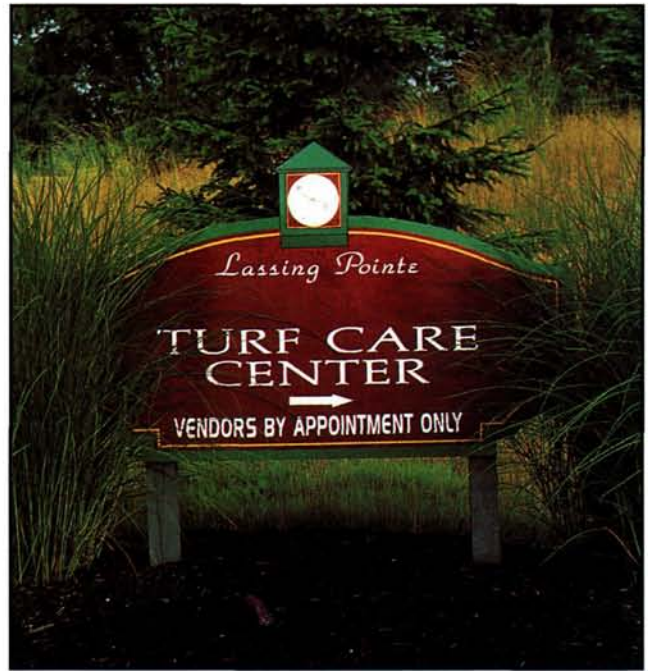


TURF CARE CENTERS: *The Heartbeat of Golf Turf Conditioning!*

Like a stone thrown into a pond, course maintenance activities originate and ripple out from the maintenance facility.

by KEITH HAPP



GOLF COURSE maintenance involves many different disciplines, from agronomy and business management to labor relations and equipment maintenance. While this list is by no means all inclusive, it does serve to illustrate the wide range of planning, scheduling, and instruction that takes place each day in the maintenance of a golf course. The many facets of daily course preparation have one thing in common; each strategy, cultural practice or management technique begins at the maintenance facility. With the day's golf schedule and weather patterns in mind, crew assignments are posted, equipment is allocated, and turf conditioning begins.

Quality conditioning does not just happen; it is the end result of sound agronomic principles applied in the field by well-prepared and educated employees. The maintenance facility, also known as the turf care center or maintenance building, is the hub of all golf course maintenance activity and is one of the most important components of course infrastructure. It is much more than just a building or buildings that house the turf maintenance equipment. Golfers typically do not see the behind-the-scenes operations at a golf course, and the purpose of this article is to examine the form, function, and importance of an organized and well-planned maintenance facility.

Location

As they say in real estate, you cannot overstate the importance of "location, location, location!" This is equally im-

portant to a golf course turf care center. Unfortunately, many golf course superintendents inherit their maintenance facilities and must make the best of what is sometimes a very bad location. Maintenance buildings that are located away from the golf course can pose logistic challenges to the golf course superintendent and maintenance operations. Maximizing the efficiency and effectiveness of course maintenance while minimizing golfer inconvenience and aggravation remains paramount. However, when the building site is an afterthought, turf care operations suffer.

Centrally located buildings may offer easier access to all areas of the course for turf maintenance but may pose obstacles for delivery trucks. If a new facility is to be built, this is one issue that must be considered. Large trucks need to have access to the maintenance compound without interfering with the play of the course. The turf management plan for the course should influence the location as well as the size of the maintenance area. For example, if outing play is a main source of revenue, then the building should be positioned to facilitate rapid completion of all course preparation activities.

Layout of the Facility

The maintenance facility layout can influence the efficiency and effectiveness of course maintenance. A well-planned layout has a positive effect on what can take place within the confines of the operation. While the entrance to the facility does not have to mirror the architecture of the clubhouse or pro-

shop area, it should represent the operation's standards and goals. Subtle, low-maintenance landscaping allows the complex to fit into its surroundings while remaining functional.

The building should have an ample entrance area, preferably 16' to 20' wide, with the capacity to accommodate large tractor-trailer deliveries. Limited space restricts delivery options and can increase operating costs. For example, if only smaller trucks can be used to deliver sand or gravel, the cost of acquiring a specified quantity of product may be increased. Issues like this can be avoided with proper planning when the facility is expanded, repositioned, or initially constructed. When large trucks can maneuver easily in and out of the facility, economies of scale can be achieved.

Allocating generous space for employee parking is important for an efficient and well-organized facility. Course employees should be able to park their vehicles safely where they do not block or interfere with work activities or deliveries and where they won't be competing for space with course patrons or members.

The courtyard is an important staging area for daily operations. Each morning, equipment is prepared and positioned for its eventual use on the course. Staging the equipment allows crew members to exit the compound in an efficient and orderly fashion.

This orderly exit also coincides with equipment maintenance schedules. Regular preventive maintenance schedules are prepared according to equip-



An organized and well-managed parts room aids preventive maintenance of golf course equipment. Allotting adequate space for repair improves maintenance efficiency and minimizes equipment downtime.



A properly equipped maintenance facility includes a hydraulic lift in the mechanic's work area. This investment allows equipment repair and servicing to be performed rapidly and efficiently.



An open storage area can be used to house materials and equipment that needs to be covered but not completely enclosed.

ment needs on the course. Having full knowledge of course maintenance schedules allows the golf course mechanic to prepare the equipment without delaying routine maintenance practices.

With sufficient courtyard space, the cost of outsourcing certain procedures can be minimized. For example, when ample space is available, composting, an environmentally friendly operation, can be performed near the turf care center. Branches, leaves, and other debris collected from the course can be processed on site, rather than having to haul the waste to a landfill.

Adequate courtyard space also is convenient for calibrating spray equipment. Weekly calibration of spray equipment is not unusual, and having sufficient courtyard space provides a good classroom for new employees to learn the science and mechanics of calibration. And, after the spray equipment is used and washed, spray distribution patterns and volumes can be evaluated before equipment is parked. If necessary, nozzles can be replaced before the next application is made.

Having room to properly train employees on maintenance equipment provides them with a high level of confidence before they transfer their new skills to the course. Teaching proper turning and maneuvering techniques reduces the potential for turf damage on the course. Even the simplest equipment operations can and should be explained, with the maintenance complex courtyard being the ideal site.

Even the positioning of above-ground fuel storage units affects the traffic flow of maintenance operations. While this issue is governed to some extent by local and state regulations, there may be some degree of flexibility available in positioning the fueling station. The fuel storage area should facilitate refueling procedures without interrupting other maintenance operations. For example, topdressing should not be stored near the refueling station for risk of contamination. Many superintendents have positioned refueling stations near wash-down containment areas, providing an added measure of hazard control. Refueling tanks can be positioned where fuel consumption can be monitored, a task often delegated to the golf course mechanic.

Adequate courtyard space also provides the opportunity to construct storage bins to contain and separate commonly used materials. Bunker sand, topdressing sand, topsoil, drainage

gravel, and mulch are examples of products frequently used during the season. Providing easy access allows the bins to be serviced without interfering with the golf course maintenance flow. The storage bin concept keeps products in close proximity to daily operations, which also aids inventory control. Product waste can be minimized as distribution and allocation of specific materials is monitored. Of particular importance is the fact that the storage bins eliminate the need to stockpile products in parking areas at the clubhouse, pool, or tennis court facilities.

Traffic flow through the maintenance complex should also be considered. Establishing directional flow helps reduce the risk of accidents and disruptions. Directional flow also helps establish a pattern for equipment service. When a project or task is completed, a standardized process for rehousing the equipment can be put into action. For example, some operations have employed a cleaning process that involves both pressurized air and water. The first phase of the cleaning process uses pressurized air to remove grass clippings. The dry clippings then can be collected and deposited in a composting site or dispersed over a selected area of the course. The odor associated with the handling and disposal of clipping debris is greatly reduced when moisture is minimized, and grease seals and wheel or axle bearings are less apt to experience accelerated wear. After cleaning with air, the machine is then exposed to a second cleaning process using high-volume, low-pressure water. The machine is washed to remove the remainder of the debris and clipping residue before it is refueled and returned to the storage area.

Maintenance facility designers offer the option of installing a washdown pad that collects all rinsate and debris. Dave Alexdrowicz, superintendent at St. Clair C.C. in Pittsburgh, Pa., had considerable input into the design of the turf center at his course. Dave insisted that air lines be installed in the courtyard area to facilitate machinery cleaning. He also installed a washdown pad to collect the remaining debris from mowers and other equipment used on the course. Their containment feature recycles the water used to wash machinery. Particulates are collected and then deposited in the compost pile. Rinse water is filtered, treated, and re-used when the next piece of machinery must be cleaned.

The washdown facility ensures that equipment is properly cleaned before it is stored. Life expectancy of the equipment is maximized, and equally important is the fact that dirt, debris, and other trash are not tracked into the maintenance building. Once the equipment is cleaned, it is fueled and positioned for the mechanic to adjust and prepare for the next use.

Maintenance Building Features

The components of a maintenance building include but are not limited to the following:

- Administrative offices for the superintendent, assistant superintendent,

- Fertilizer storage room.
- Pesticide storage and containment unit.
- Heated work area for mechanic and equipment maintenance activities.
- Unheated equipment storage area.
- Hand tools storage room/area.

While the pesticide and fertilizer storage areas are components of the turf care center, they are often designed and positioned as stand-alone structures. Regulatory guidelines govern these storage units. Environmental and worker safety concerns must be high priority issues when the maintenance facility is designed, renovated, updated, or expanded.



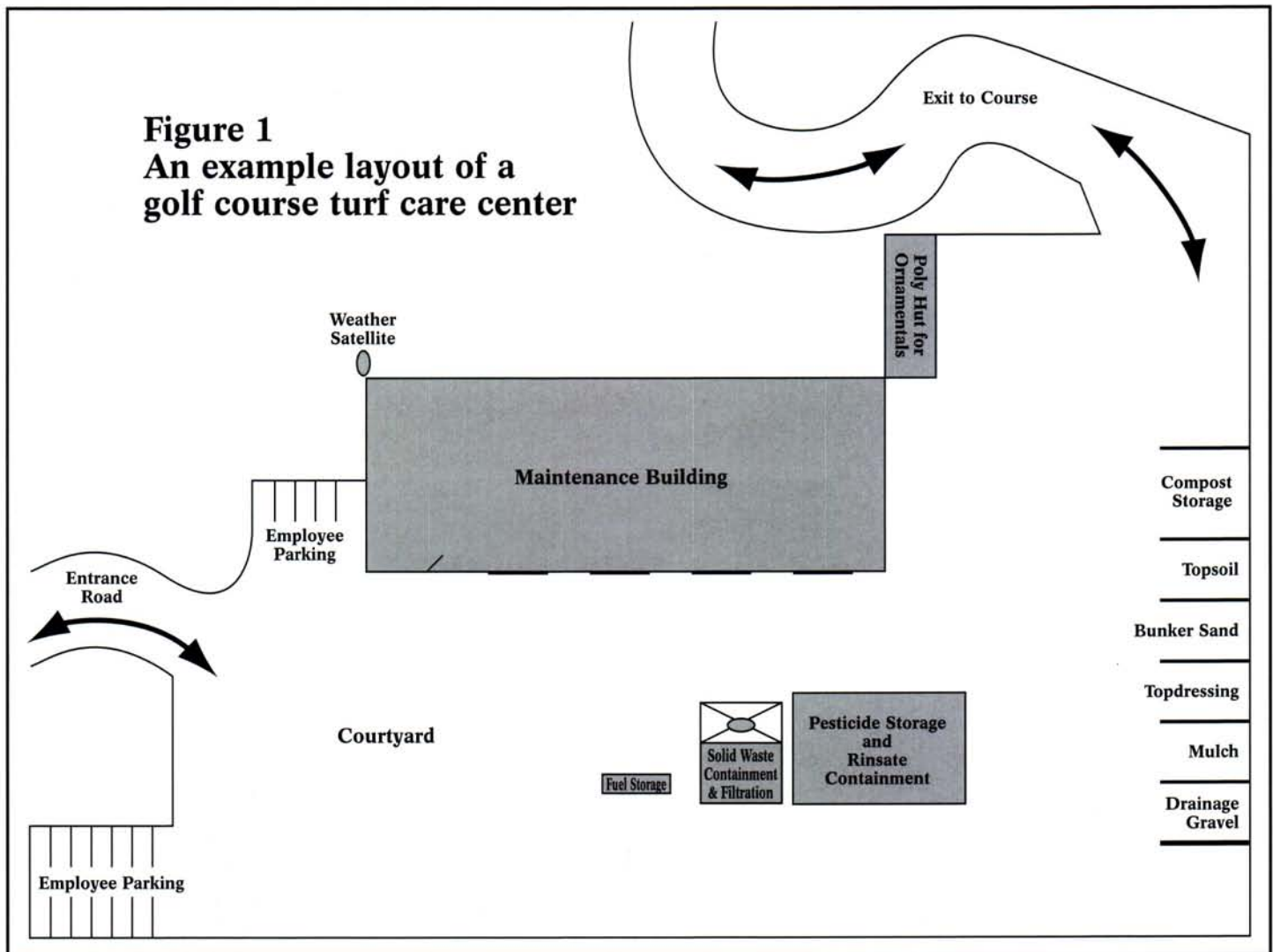
The lunchroom serves many purposes. In addition to functioning as a break room, this area can be used for meetings, providing instructions to the crew, and posting work assignments.

mechanic, irrigation specialist, and horticulturist.

- A lunch/break room that offers sufficient capacity to accommodate the entire crew.
- Locker room/restroom facilities for male and female employees.
- Parts room for the most frequently used repair items.
- Grinding room to properly prepare cutting equipment.
- Paint room with proper ventilation.

The building or building complex should be large enough to house all of the equipment necessary to meet agronomic and playability demands of the golfers. Undersized buildings only serve to frustrate operational efficiency and can lead to a more frequent need to replace equipment. Expensive equipment that has to be stored outside and exposed to the weather will wear much more rapidly. Additionally, an undersized building makes it much more difficult to stage equipment for daily

Figure 1
An example layout of a
golf course turf care center



use. For example, it is not uncommon to hear complaints about having to move equipment in and out just to get at the required machinery, which is blocked in. This bogs down the flow of maintenance procedures and hampers the mechanic when regularly scheduled preventive service is needed.

The maintenance building has several things in common with the clubhouse facility. The clubhouse exists to meet the needs of the golfers, while the maintenance building exists to meet the needs of the course. The clubhouse can be a valuable recruiting tool to attract golfers, and the maintenance building should serve a similar role. Ultimately, course conditioning, which is directly impacted by the maintenance facility, is what keeps the golfers coming back. When a professional atmosphere is perpetuated, the goals of the maintenance program can be attained and in many cases surpassed. The environment in which employees work is a critical part of the work experience, and a professional work environment is a public

relations tool for employee recruiting efforts. The environment should promote a sense of responsibility and pride in the place of employment, and meeting employee needs signals that their work is appreciated and will be rewarded.

Office Space

The superintendent's and assistant superintendent's offices should be located away from the equipment storage area to insure a quiet workspace. There is an ever-increasing need to have an office with a secretary to handle daily business and record keeping, and office size should reflect this need. Invoices must be processed and maintenance logs must be kept up to date. Business meetings with suppliers, for example, can be conducted in a setting that minimizes interruptions.

Computers are often used for record keeping and planning procedures. These machines need to be stored in an environment that does not jeopardize life expectancy. Dust and heat do not

mix well with computer components. Air conditioning may be looked upon as a luxury by some, but it serves a valuable role with the increased use of computers to operate irrigation systems. A computer malfunction could jeopardize turf health and playing performance.

It is not uncommon to provide separate office space for a horticulturist, irrigation technician, and mechanic. The golf course mechanic, in particular, has many duties in addition to the up-keep of equipment. Parts must be inventoried and a complete maintenance history of each piece of equipment must be kept. This allows repair and maintenance costs to be tracked, which in turn helps to manage future capital equipment expenditures. Machinery can be replaced before repair costs become burdensome.

Mechanic's Office and Work Area

The mechanic's area varies depending upon the scope of the equipment used to maintain the course. A well-

organized repair shop offering sufficient space for work on multiple pieces of equipment enhances the efficiency of the operation. Breakdowns will occur, and often at the worst times. With sufficient space, preventive maintenance can be performed and, when necessary, unscheduled repairs can be completed. Equipment of all sizes should be able to fit into the shop area. A hydraulic lift is an excellent investment, and attachments can be purchased so that even the smallest of machines can be positioned, lifted, and serviced.

Locker Room

The locker room should offer adequate personal storage space for full-time and part-time employees. The design should provide sufficient space to change clothes before work begins and, if desired, clean up after the workday is complete. Locker rooms often are placed next to or are incorporated into male and female restrooms. The size of the locker rooms can vary depending upon the crew size, but there should be locker space for full-time, part-time, and seasonal employees.

Lunch/Break Room

The lunch/break room is an essential component of the building design and should be a clean area, away from the equipment storage sector of the building. Employees should be able to

prepare warm or cold food. A sink, coffee pot, vending machine, and refrigerator are needed components.

A television and VCR often are found in this area of the maintenance building to facilitate training and instruction of new employees. Videos can be used to provide basic instruction and guidance on new procedures and the operation of new equipment. There are videos available that detail all elements of golf course maintenance, including basic language skills. Diverse crews have diverse needs, and no need is more important than communication.

Other educational and planning sessions also can be conducted in this area of the building. It is not uncommon to host a Green Committee meeting in the lunch/break room. After turf care programs are discussed, committee members can tour other areas of the turf care center.

Fertilizer Storage

Fertilizers and pesticides should be stored separately and housed away from employees and maintenance equipment. This minimizes the chance of spills or waste while inventory control is easily facilitated and safety is maintained.

Pesticide Storage

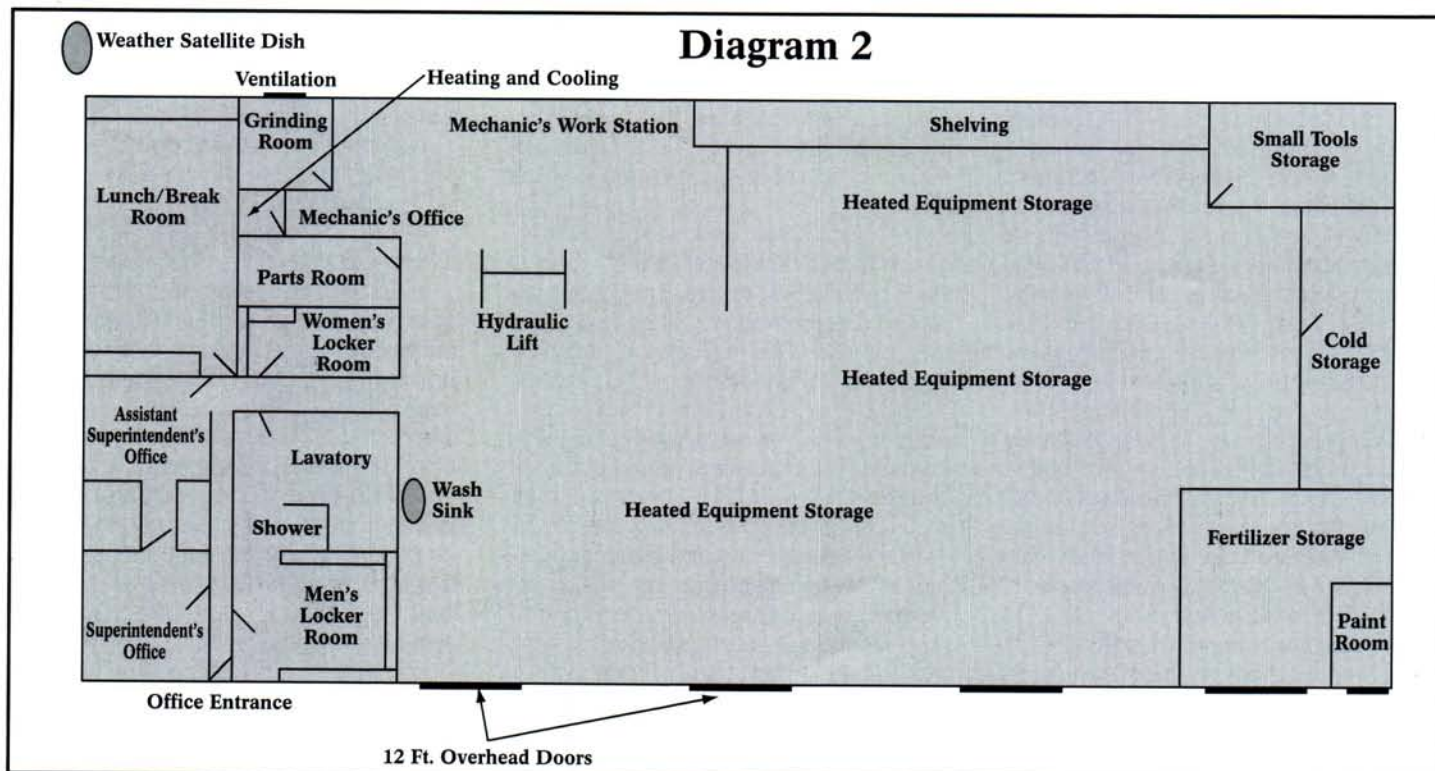
Pesticides should be housed in a stand-alone storage unit to minimize

environmental impact and help ensure worker safety. Regulatory agencies can provide input on the standards and specifications for these containment buildings.

Conclusion

What used to be known as the *maintenance barn* or *maintenance shed* is now an active center for learning and teaching. A turf care center evolves into a facility that meets the demands of the course, satisfies the desires of the golfers, and fulfills the needs of the golf course maintenance crew. Developing and sustaining a good work environment is critical to the inner workings of the maintenance operation. Employee welfare and safety cannot be overlooked and are issues that are vital to a successful operation. A clean working environment allows the total investment in golf course maintenance to be sustained. The turf care center, as the heart of the operation, protects the operation's primary asset, the golf course.

KEITH A. HAPP is an agronomist in the Mid-Atlantic Region, visiting courses in the states of Delaware, Pennsylvania, Maryland, Virginia, and West Virginia. Keith has a sub-regional office located in Pittsburgh, Pa., bringing him closer to courses in the western portion of the Mid-Atlantic Region.



The golf course maintenance building encompasses many components, which ultimately impacts the efficiency and effectiveness of the operation.