

Systematic maintenance

A PROVEN MAINTENANCE SYSTEM GIVES PGA TOURNAMENT PLAYERS CLUBS MAXIMUM EFFICIENCY AND PRODUCTIVITY

Every minute spent in planning saves four minutes in execution. If that maxim is true, the planning and forethought that Cal Roth, Director of Maintenance for the PGA Tour and its Tournament Players Club (TPC) courses has put into setting up golf course maintenance facilities saves many man-hours every day.

With nearly 25 years to hone and fine-tune his maintenance facility format, Roth has put together a formula for a smooth, efficient operation. His time-tested plans are a required element on every TPC course.

"It's been an evolutionary process," he says, "and we've found that our advanced planning makes the facilities more efficient right from the beginning, and that translates into saving both time and money."

Three building blocks

Central to the maintenance plan are three buildings to separate the various maintenance disciplines and accommodate the work.

"We like separate buildings for a couple of reasons," Roth points out. "First, it allows us to fit the facility into the space available easier than if you use one big building. It used to be very common to place the maintenance facility on whatever piece of land was available after the course, clubhouse and other facilities were positioned, so making it work efficiently was a challenge. With our system we can control the fit on a square piece of ground or on a triangular patch."

"We try to put new buildings on an acre of land, but we've done it with as little as one-half acre," adds Michael Johnson, vice president of PGA Tour Construction Services, and the man who translates Roth's ideas into finished structures. "Costs vary from region to region but land is always extremely valuable. Building codes and local regulations vary a lot, too. We've found that it can actually be less expensive to build two or three buildings on a site than trying to build just one large one that can meet all the codes and regulations. It's often easier to manage the workflow and traffic – people and machines – with more than one building, too."

Roth says any course considering expanding, remodeling or creating a new maintenance center can adopt PGA Tour's maintenance philosophy. The ultimate goal is getting people and machines in the right places at the right time with no wasted effort. Safety and security are key considerations as well.

The maintenance building

The main maintenance building is the center of activity and the most expensive to build and finish. It is equipped with heat and air-conditioning, plumbing, telephones, computers and all the finishing touches of today's modern office. It houses the office of the superintendent, assistant superintendent, managers and support staff, as well as the employee areas where they take their breaks and get their assignments.

"One of the first things I noticed was the noise – or rather the lack of it. This was a business setting, a professional's office. It didn't have the 'garage' feel that some superintendents' offices have," says Chris Hague, CGCS, superintendent at the TPC at Deere Run, near Moline, Ill. "Beyond the main offices, the building is 'zoned' into individual work areas for the spray technicians, the maintenance manager, irrigation technicians and others."

Hague is no stranger to well-organized, top-flight facilities with tournament venues such as the Baltimore Country Club, Crooked Stick Golf Club and Hazeltine National Golf Club on his resume. Yet, he's seen immediate advantages with the system.

"Small things make a big difference, and the best way to describe the layout is user friendly, especially for the technicians and mechanics," he adds. "I'm spoiled, but if I went back to another course, I'd take a lot of this organization system with me."

In addition to the offices, the maintenance building houses the equipment repair bays – at least two for an 18-hole course – the parts department, all the reel grinding equipment, small tools and related supplies, and small equipment like walk-behind greens mowers and all the hand-held power tools.

Each section has its own "room," usually outlined by walls made of chain-link fencing on metal support frames. The walls are 8- or 10-feet tall.

The design helps control the movement of people, parts and equipment. "We try to eliminate wasted steps and wasted time, so we've considered people's moves from the time they park their cars," Roth explains.

There are two main entrances, one to the staff area and one to the offices. Crew members, once they get their assignments, go into the yard right from the employee area, not by cutting through the shop. All the individual areas of specialty – parts, irrigation, small tools, chemicals and equipment for example – have separate access doors from the outside.

"Having separate access makes it easier for people to get what they need and get on with the job without traffic jams," Roth says. "The layout inside the building is kept simple. There's plenty of light and the walls double as hangers for equipment. If you want to enlarge an area, the walls are pretty easy to rearrange."

"The fenced-in areas also provide good security because it's easy to see what's going on, while resources can be kept under lock and key," he adds.

Equipment storage building

The second building is the most basic. It's designed for large equipment storage. While little more than a glorified shed, it protects the investment in machinery.

"In the south, where we don't have to deal with winter weather, the storage building is usually about 150-feet by 30-feet, with only three walls. It's a metal shell on a concrete slab. We don't have to have heat or plumbing, so that keeps the costs down. In the north, where we do have to protect against the elements, we add a fourth wall and doors, so it expands to about 150-feet by 40-feet," explains Johnson. "The size is somewhat determined by the number and size of the machines that we'll have to cover."

Outside, against one wall are six open stor-

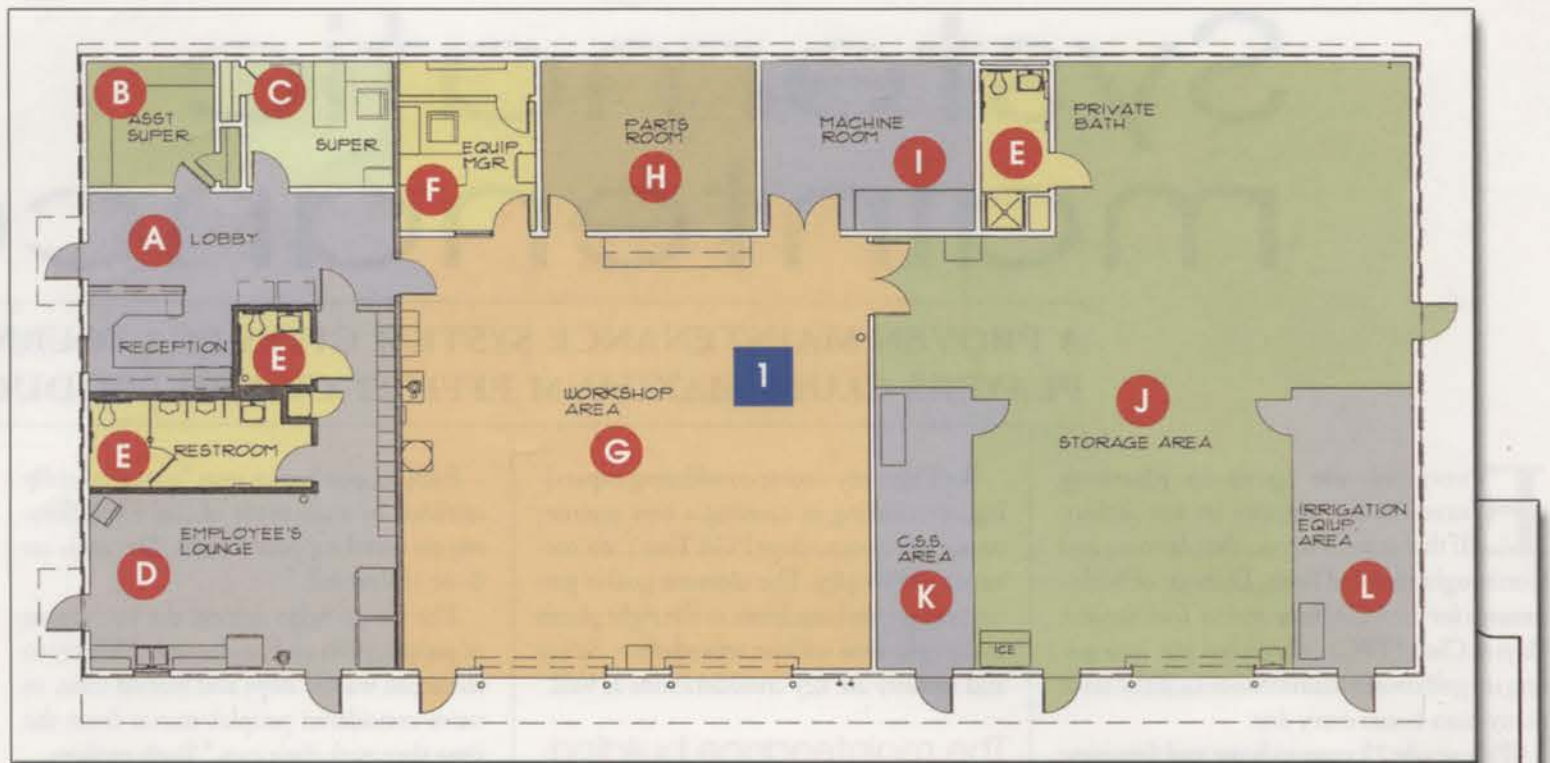
by A.D.
HORN

1. MAINTENANCE BUILDING

Designed to house a staff of 25 to 30, this 110' x 50' building separates administrative and shop functions for quiet office work and maintenance work that is grouped logically. All office areas will be carpeted and have finished walls and ceilings. The lounge, restrooms and janitorial closet floors are tiled and also have finished walls and ceilings. The office and lounge areas are air-conditioned. The building includes a computer area, janitorial closet and lockers for employees.

The shop and small equipment area floors are sealed and painted with epoxy/polymer paint. The maintenance area is heated. In the hot, dry southwest, swamp cooling will be included. The entire maintenance area uses louvered-type exhaust fans or similar outside ventilation.

Parking is located close to the building and 2-4 stalls near the entry door are reserved for visitors and vendors.



The entire building is protected by a monitored security system.

- A. Lobby/reception area is 10' x 26'
- B. Assistant superintendent office is 8' x 8'
- C. Superintendent's office is 10' x 15'
- D. Employee lounge is 26' x 14' and includes two vending machines, a kitchen countertop, kitchen sink and cabinets, a refrigerator and an independent telephone
- E. Restrooms
- F. The mechanic's/equipment manager's office is 15' x 11' and includes a window for observation of the workshop area
- G. The shop is 35' x 38' and is accessed from the outside by two 10' x 10' roll up doors
- H. Shop parts area is 12' x 15'
- I. The machine room is 15' x 19.5'
- J. The storage/small equipment area includes a private bath and is accessed from the outside by an 8' x 10' overhead door
- K. The golf course supplies storage area is 8' x 16.5'
- L. The irrigation equipment area is 22' x 12' and is accessible from the outside

2. ENVIRONMENTAL BUILDING (OPPOSITE PAGE)

3. EQUIPMENT STORAGE BUILDING

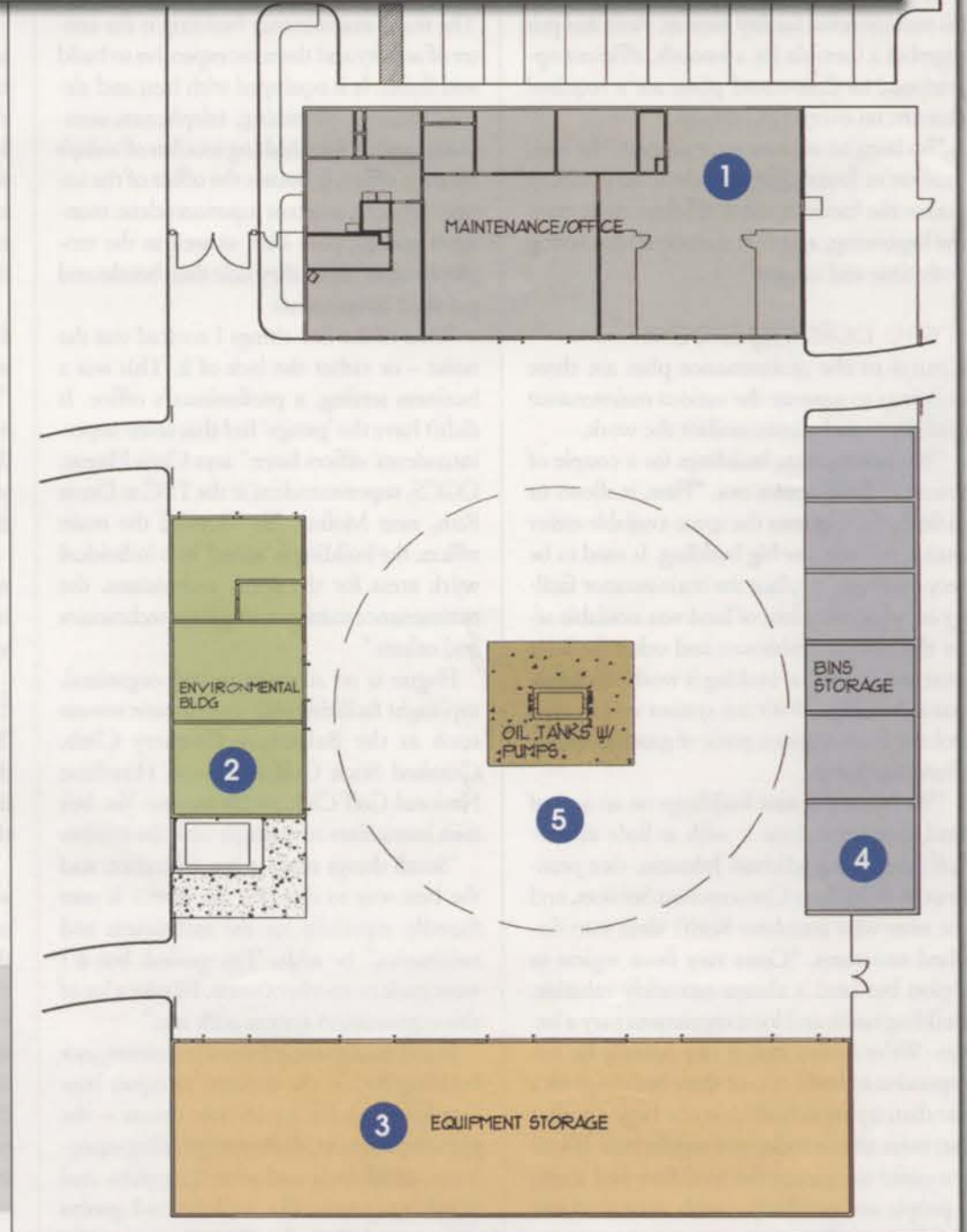
In southern climates this fully covered building is usually 30' x 150' and enclosed on three sides. In the northern climates it is 40' x 150' and fully enclosed, with 8' high x 10' wide and 10' high by 12' wide roll-up doors. Inside walls are protected with plywood or a similar material to a 6' height. No heating or cooling is required. Outside, corners of bay door openings are protected with steel bollards or guards. The area is enclosed with steel chain link fencing for security and a security system for the building is also required.

4. MATERIAL STORAGE BINS

Six bins are formed with 8' high concrete block walls and a concrete base that extends 3' in front of the walls. Two bins are 20' x 25' and four are 15' x 15'.

5. FUEL STORAGE AREA

A 500-square-foot concrete pad serves as a fuel island with a minimum of two above-ground storage tanks capable of holding 500 gallons of gasoline and 500 gallons of diesel fuel. A metered pump system accommodates up to five accounts for tracking department use. Bollards or block walls are necessary to protect the fuel tanks.



TPC's ideal maintenance compound

An ideal Tournament Players Club (TPC) maintenance facility is a compound consisting of (1) a maintenance building, (2) an environmental building with a waste disposal area and an equipment wash area, (3) an equipment storage building, (4) material storage bins and (5) a fuel storage area. For efficiency, safety and security, the compound can be arranged as shown. If a site does not make a compound possible, the individual buildings can be located on the course as space and needs require.

2. ENVIRONMENTAL BUILDING

This building is designed to meet EPA standards.

- M. The fertilizer storage area is usually 32' x 22' and is accessed from the outside by a 10' x 10' roll-up door.
- N. The pesticide storage facility has a separate area for pesticide storage with outside access, a storage area for two sprayers, a mix/load bay and a self-contained recycling system for rinsate. Outside access to the mix/load bay is through a 10' x 14' wide roll-up bay door. The pesticide storage room requires heating to 50 F, but no cooling. A hot water heater provides heated water for mixing pesticides, and an air compressor for tank agitation. Concrete floors are painted with an epoxy/polymer floor paint.
- O. The wash bay is a 20' x 30' concrete pad with containment curbing. The pad slopes to the center where rinsate is captured and filtered for grass clippings, debris, oil and water.
- P. A waste disposal area holds a 30-cubic-yard low-profile waste receptacle that is usually located on a concrete slab with a 3' or 4' high wall to separate it from a concrete slab dumping site that can be used for scooping up debris with a front-end loader.



age bins for raw materials such as sand, topsoil and mulch.

Environmental building

Building three is the most unique, serving as the “mix/load” building where chemicals, fertilizers and related equipment are kept. With more and more state, local and federal regulations dictating how chemicals must be stored, handled and used, this building can become the focal point of the facility – and it’s the one many superintendents would add to their courses, if given the budget.

“We provide heat and plumbing in this building because some chemicals have to be stored and mixed at specific temperatures, and this is also where all the mixing and clean up is done,” Roth explains.

The “mix/load” building houses all the spraying equipment – usually room for at least two spray rigs – and all the loading, mixing and cleaning facilities. A drive-through wash bay is a standard feature.

“Two relatively small details are particularly important” adds Johnson. “We use removable drains in the wash-out area so any grass clippings and other debris can be dug out to prevent clogs and overflows. And, we install a small hot water heater so we can mix warm water with the chemicals. On cold mornings, that helps them dissolve more evenly for a more efficient mix.”

Local or state regulations usually dictate how to handle chemicals, but increasingly these codes mandate a separate building for pesticides. To comply with standards, or to exceed them, Roth and Johnson say this facility includes a containment curb or lip around the entire area – at a minimum a 4-inch concrete curb around the entire chemical area to contain any accidental spills.

“We also recommend using metal shelves rather than wooden ones,” Roth adds. “Wood can absorb chemicals and moisture, while metal will not. But you have to be careful

around metal, too. Some chemicals can be corrosive, so you have to keep the shelves clean. You also may have to repair, sandblast and repaint, and replace them eventually, but not as often as ones made of wood.”

The concept of the environmentally friendly building is another that can be adapted to most courses.

“The environmental building is one of the smartest parts of the whole organizational plan,” says Pat Franklin, CGCS, from The Tournament Club of Iowa, near Des Moines.

“When I was first introduced to it, I thought it might be excessive and not really necessary,” he says. “But once I saw how it worked and what it can mean to the facility, it made a believer out of me.”

Franklin stepped into his role in Iowa when the course was in the initial design stages, coming to his post after serving as superintendent at both the TPC of the Twin Cities (Minneapolis/St. Paul) in Minnesota and at the TPC at Deere Run.

“This building is set up not only to be efficient for the staff, but to protect the environment and everything around it,” he adds. “I think of it as being a ‘neighborly’ building – it’s safe, efficient and good for community relations. This kind of attention to detail not only shows that we know what we’re doing, but that we’re aware of the impact we can have on the community.”

The bottom line for superintendents is an emphasis on organization.

“It’s the overall organization that sticks with you,” Franklin continues. “Everything has a place and everything is in its place. When you get into that habit, and your people get into that habit, you do eliminate wasted time and wasted effort. At my new course, the staff has really taken to the idea and they have found it has made them more efficient – fewer wasted movements, less time preparing for a job and more time getting the job done right.”

Planning, from the beginning, for every aspect of a superintendent’s day has led to facilities that raise the overall quality and performance of the staff to that magic “next level.” Thinking in terms of specific disciplines within the job, and making each as efficient as possible has led to savings in time and money. In today’s budget-crunching atmosphere, that’s critical to success. And these concepts can be adapted to an existing facility, put into a remodeling plan or imprinted on a new design. GCN

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Improving a single maintenance building

It’s possible to gain many of the advantages of Roth’s system within a single building. The key is to bring people and machines together in the right place at the right time, eliminating wasted actions, making the whole operation safer and more secure. To accomplish this, consider the following:

- Offices for the superintendent, assistants, managers and support staff should be isolated from noise and as many distractions as possible.
- Consider “zoning” your work areas for various specialties – areas for your spray technicians, your irrigation technicians, your mechanics, and all the tools each needs on a daily basis. These areas can be divided by partitions, or marked off by simply painting different colored lines on the floors with specified walkways.
- Organize by need – put parts and mechanics’ tools close at hand and centralized so people aren’t zigzagging through the shop.
- Divide space creatively using chain link-style wall sections for secure storage.
- Use logical parking arrangements for equipment to get the day off to a smooth start, rather than an unplanned “first-in, last-out” scenario.
- Plan pesticide storage and handling areas to improve safety and handling, and to meet federal, state and local regulations. Store all pesticides within an area having special drains, ventilation and containment curbing to protect against leaks or spills.

By observing your traffic patterns by function, and by documenting where work bottlenecks occur, you can increase efficiency in an existing maintenance facility. While separating functions into dedicated buildings is an ideal situation, any maintenance facility can be improved with planning and some investment.