Designing your WORKSHOP

MICHAEL BIRD concludes his report on the ideal golf course workshop, with practical tips on what to build and how to build it.

A well-designed, properly equipped and efficiently managed workshop will enable the majority of machinery service, repair and maintenance tasks to be carried out without the need to call in the supplier or repair specialist. This requirement is equally as important on a golf course as it is in any industry where work must be completed outside normal hours. Punctures may need to be repaired, frames welded and cutting cylinders re-ground at a time of the day when the dealer’s front door is firmly locked and its service engineers are literally still only dreaming about their breakfast.

As the demand for golf grows, with more and more players prepared to start their round the moment the sun clears the horizon, the pressure on those responsible for machinery maintenance is going to increase at both ends of the day. For that reason, the workshop building needs to be carefully planned and managed.

The first step in designing any new building is to establish the required finished size. In the case of a workshop, this can only be determined by sitting down and deciding on the number and the type of machines which will require access and what may need to be done to them when inside.

For example, it would be illogical to make an entrance sufficiently high to allow access by a tractor and back-acter if the boom cannot be extended fully when the equipment is within the building. ADAS mechanisation consultant, Warner Hall, recommends that golf clubs think in terms of 15ft (4.5m) bays when planning a new workshop. “A single bay building measuring 15ft wide by 30ft deep is just about the simplest design available and this will be suitable for storing and servicing equipment used for, say, a golf driving range,” he comments. “For an 18 hole golf course, a building measuring 45ft wide by 30ft deep by 15ft to eaves will fulfill virtually all requirements”.

Hall advocates a minimum height to eaves of 15ft in all workshop buildings and sufficient floor space to allow at least 1m clear around any machine being serviced or repaired. The site selected for the workshop should be level with sufficient space for an external concrete apron running the full length of the building. Avoid areas with overhanging cables, although it is advisable to be within easy reach of mains water and power. For maximum security, the workshop should be situated as close as possible to occupied buildings.

To make full use of the outside walls, an open or lockable lean-to can be built at the side or rear for storage of machines, fertilisers or top dressings. If an office or rest room are required, Hall recommends adding a further 15ft by 30ft bay which can be divided into suitable rooms along its length. “This part of the building should be kept completely separate from the workshop area,” he stresses. “There are good reasons for not having a personnel door in the wall dividing the workshop from any office or restroom. Easy access will encourage food being carried into the workshop and tools, overalls and dirty boots being taken into the rest area.” To allow the free movement of machinery in and out of the building, every 15ft bay should have a separate entrance with its own lockable door. For maximum security, safety and convenience, a steel roller shutter is the ideal answer. The doors should have steel frames and can include a personnel entrance to minimise heat loss when moving in and out of the building during winter. “It is important to liaise with the local fire officer when planning staff entries and exits from buildings,” comments Hall. “It is quite common for personnel doors to be positioned at the side or...
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12 - rear of the building, but the final design must satisfy both
the planners and the building regu-
lations."

For reasons of security, it is
advisable to not have any win-
dows in the building, apart from
translucent corrugated or flat
sheets in the roof over each bay.
All calculations on lighting should
therefore ignore the presence of
any natural light. The recom-
mended level of artificial light for
building such as a workshop is
100 lux, and this can be achieved
by allowing 10 watts for every
square metre of floor. However,
experience has shown that one
sheet 1m above ground level and
have either wire-reinforced glass or
protection by steel bars on the
outside. Because lighting is so
important, provision should be
made to connect a stand-by gen-
erator into the electrical circuitry
to maintain illumination, and to
power small tools, in the event of
a mains failure. For maximum
working efficiency, the building
should be warm but not hot.
A temperature close to 60degF
(16degC) will prove comfortable,
and this should be supported by
draught-free doors and well-insu-
lated walls and roof, helping also
to prevent condensation. The
greatest heat loss from any build-
ing is normally through its venti-
lating air, so it is important to
consider other services.
In common with lighting, one
can never have too many electri-
cal sockets. These need to be posi-
tioned around the walls and on
any building stanchions to keep
lead lengths to a minimum.
Meters and fuse boxes should be
housed in lockable cabinets and
the circuit should include an earth
leakage trip to enable regular test-
ing. Most sockets will be of 240
volts, 13 amp capacity - although
at least one 30 amp outlet will be
needed for welding equipment,
with three phase supply recom-
mended for both welders and
compressors. A compressor has
become an essential item of work-
shop equipment, used to power
air jetting lines, tyre gauges and
a host of hand tools. Ideally, the
compressor should be housed out-
side the workshop in a weather-
proof, yet well-ventilated area
and linked to the various service
points by a pipeline fixed to the
wall within the building. It is vital
that any fixed compressor unit is
properly designed, installed and
commissioned to ensure the sup-
ply of clean, moist-free air of suf-
cient volume and pressure to the
delivery points.
Utility advice for anyone con-
sidering the installation of fixed
equipment in a workshop is to
look at how other professional
organisations go about the job.
Tyre specialists or a service centre
run by one of the major car acces-
sory companies all have well-
equipped, sensibly laid-out
buildings able to provide good
ideas. The workshop bench is a
key area. The more benches there
are, the more clutter there is.
likely to be. Hall recommends
that each person in the building
should have just one 6ft long by
30in wide bench which is their
sole responsibility. Only where
there is a high proportion of
bench work should additional
space be provided. Ideally, benches
should be attached to the
rear wall of the building opposite
the main doors, and also screwed
securely to the floor. A vice is the
only item of fixed equipment
which should be fitted to the
bench. To avoid trailing leads,
position power sockets and air
line outlets beneath the front face
of the bench. A further useful
addition is an adjustable spotlight
mounted at the rear of the bench.
The back wall can be used also to
support slotted racking to carry
hand and power tools as well as
labelled bins. These will prove
invaluable for the storage of small
components when stripping down
a machine. Larger items can be
placed on a shelf beneath the
bench. Building and store security
is very important and the number
of key holders should be kept to a
minimum. A good maxim is to
lock the building when empty of
people. Apart from the safety
aspects, it is all too easy for some-
one to wander in and 'borrow' a
spanner, line pin or grease gun,
forgetting to return it until weeks
later - and sometimes never.
All well-run workshops will
need an outside wash-down area
where machines can be cleaned of
grass and dirt. Any water contami-
nated with oil, fuel or grease will
need a separate oil trap, as
required by the National Rivers
Authority. Servicing of machines
must be carried out in accordance
with the manufacturers' sched-
ules. It is vital, therefore, that the
person responsible for maintain-
ing the machines is kept informed
by operators of impending service
requirements and any problems
which may need attending to. If
the operator also looks after his or
her 'own' machine, then its service
needs are usually dealt with
promptly. Problems can arise,
however, with equipment which
has no specific operator or user.
Not only can service intervals
become greatly extended, but, in
the case of hand tools, parts can
go missing or become worn or
broken without any remedial
action being taken. The answer,
says Warner Hall, is to allocate
every new item of course machin-
ery or equipment to a member of
the maintenance staff. "That way,
nothing should get put away if it
needs attention or servicing," he
points out. "Most people react
to responsibility. Even if they
do not use the item of equipment
themselves, they will make sure
that it is clean, in good condition
and returned to where it is stored
at the end of each day." Although
each club will wish to develop its
own system, Hall suggests that
every person is given their own
'log book' which lists the
machines they are responsible for,
their daily maintenance require-
ments and a record of servicing,
repairs and spare parts used. The
end result will be better main-
tained equipment leading to
reduced servicing costs, downtime
and aggravation.