



TECHNICAL NOTE

48 – Swimming pool covers operation and safety

July 2020 This note applies to covers (not liquid) used for heat retention.

Fitting a pool cover has a number of advantages; they help to:

- conserve energy – up to 20% savings
- reduce cost – payback in 1-3 years
- protect the building structure, reducing maintenance requirements.

But if your pool has been designed to recover energy in other ways – for example by using efficient energy management systems – or if the design of the pool area means that heating and ventilation must be maintained constantly, then pool covers may be inappropriate or undesirable.

Assuming a pool cover is a realistic option, this technical note provides guidance on operation and safety issues.

Types of cover

Pool covers may be either manual or motorised. Manual operation demands a certain level of staffing. Because of this, they are not recommended on larger pools, where there is also a risk of damage to the cover when moved. As a result, motorised covers are more reliable and economical. And as they are easier to operate, they are more likely to be used consistently and thus give greater savings.

It should be possible for automatic pool covers to be removed manually in the event of motor failure.

Specification and installation

Materials and standards should be to at least the minimum indicated in current British Standards, codes of practice, or equivalent British/European standards. The cover material thickness affects thermal efficiency and therefore potential savings. Typical thickness ranges from 4 to 8mm; 8mm is the more thermal efficient.

Roller tube and shaft diameters should be selected to ensure minimum deflection of the tube and safe support of the roller, bearing in mind that the cover's weight can increase with age.

Grade 316 stainless steel or better should prevent corrosion, but will need weekly rinsing with fresh water and wiping down. Alternatively, duplex coated steel (coated galvanised steel) appears to withstand pool atmosphere conditions – provided the duplex coating is not compromised.



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Electrical

Installation of electrically powered motorised units should be by people suitably trained, qualified and experienced with the class and type of equipment used, in accordance with IEE regulation 702.

Ideally the motor and operating panel will be sited away from the pool surround. If not, they should be enclosed in a secure housing with lockable access. The *Electricity at Work Regulations 1989* may limit the position of a motorised system within the pool hall.

Design

The pool cover should fit over the maximum amount of pool surface area possible, to give the greatest return, given sufficient clearance from the poolside to prevent snagging. The pool cover should be sited in a position to maintain safe access for people passing by the apparatus on the pool surround. For larger surrounds such as competition pools, where the cover spool is mounted at the pool hall perimeter, rails will be needed to guide the leading edge to the water. Starting blocks and other competition equipment should be removed first, to avoid damage.

Motorised covers for large commercial pools are typically wall or column mounted. Smaller pools can have submerged cover systems, generally located in a pool base trench or a cave behind the pool wall. These have their own issues: for example entrapment can be a hazard where the cover enters the pool wall; and circulation problems – ensuring disinfected pool water flows around and through the slats so that bacteria do not proliferate.

Safety hazard People falling into a covered pool and becoming trapped is an acknowledged, life-threatening hazard. There are a number of means of preventing this. If risk assessment shows that the pool area can be secured from access from all but trained staff, this may be sufficient to adequately manage the risk.

Otherwise, it will probably be necessary to ensure that the pool cover is capable of supporting the weight of a person walking or falling onto it. Bubble covers provide thermal savings and leaf protection but not safety support. Only covers marketed & sold as safety covers should be used as one. If that is the case users should ensure the maximum loads are known for use within any risk assessments.

Operational

Operating instructions for pool covers should be included in the Normal Operating Procedure (NOP) of each facility. The Emergency Action Plan (EAP) should detail the action to be taken in the event of an emergency associated with the use of the pool cover – for example someone falling onto the cover.



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Operational and safety training should be given to all relevant staff. On new installations this may be provided by the manufacturer/installer but specific ongoing training should be available to train and retrain new staff, not least because correct usage will extend the life of the cover. All training should be recorded.

Operation of the cover should be supervised so that immediate corrective action may be taken in the event of a malfunction. Automatic units should be operated by a key and fitted with an emergency stop button.

Well maintained, a pool cover should have a life expectancy of more than 5 years. It is very important that these systems are serviced on a regular basis with particular attention paid to the various fixings.

Storage and cleaning

Ideally a conventional pool cover should be stored off or above the pool side in a well-ventilated position to help prevent a continually wet condition encouraging bacterial colonisation. Storage on poolside should not be such as to present a safety hazard to staff and customers. The cover should be inspected weekly to ensure that it is clean and hygienic and not showing any signs of bacterial growth. This may manifest as biofilm – slimy to the touch, but not necessarily visible. If necessary it can be tested by taking swab samples. If algae is visible, this can be checked similarly.

Covers will require cleaning regularly – according to manufacturers' instructions, or as necessary, and at least monthly. A 100mg/l free chlorine solution should keep covers free from bacteria and minimise biofilm formation. This can be applied by spreading the chlorine solution across the surface, perhaps using a soft brush, and leaving for 30 minutes.

Placing the cover on the pool

The pool should be completely empty of swimmers before starting to pull the cover onto the pool. Swimmers should never be allowed into any part of the pool while the cover is in operation. About 30 minutes should elapse after the pool is clear of bathers before putting the cover in place, to establish an equilibrium between pool water and atmosphere.

When the pool cover is in position, access to the pool hall should be secured and access restricted to authorised people only

Energy saving practice

For maximum energy savings by removing humidity from the pool hall, once the cover is in place ventilation plant and heating should run for 30 minutes. Heating and ventilation can then remain off or run at a reduced level throughout the closed period. About 30 minutes before the cover is removed,



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the heating and ventilation system should be restored to raise the temperature of the pool hall and internal surfaces to close to that of the pool water. This requires the building insulation to be sufficient to prevent condensation. It may be necessary, particularly in cold winter weather, to provide some background heating and ventilation.

With reduced evaporation and heat loss from the pool water surface, the primary heat load required to maintain water temperature will also be reduced.