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Planning your plant room

It is often said that consumers buy with their eyes and swimmers are no different. Here members of the SPATA technical committee explain why having a properly finished pool is vital if that all-important appearance is not to be compromised.

With consumers being offered more choice and becoming more discerning with how they spend their leisure pound, swimming pool operators need everything in their favour. If you want to be sure that your pool keeps attracting customers then paying attention to what happens behind the scenes is key and there is a list of things you need to address.

Location

The plant room should ideally be positioned at one end of the pool, preferably at the deep end to ensure both hydraulic efficiency of the pool water circulation system and to minimise the length of the suction pipework. Location will have an impact on the size of the flow and return pipework as, depending on whether the plant room is below or above the pool water, this will affect the net pressure suction head (NPSH) or, less formally, the available pressure at the pump suction inlet, or head resistance. This can also mean that pumping sumps for overflow drainage and forced draft ventilation may be necessary. The level of the plant room floor should be the same level as the pool water static water line or below (which is the level of the water when at rest) but, should the plant room floor have to be located above the pool water level, then the vertical lift of the circulation pump/pumps should not exceed the pump manufacturer's recommendations.

Ideally, there should be easy access from the poolside into the plant room for periodic monitoring of all the plant and equipment, but, and this would seem obvious but is often missed at the design stage, this must be under strict management control so that customers cannot gain access to this area. Any potential leaks should be identified and addressed promptly.

Plant room size

The size of the plant room is critical. It should not only be large enough for the plant and equipment but also be big enough to meet future servicing, maintenance and replacement requirements. Clear working space around all of the equipment is an absolute necessity. Unless the access is sufficient for the operator to move easily around the equipment as required there will be problems when things go wrong with equipment such as filters and air handling units. All too often the plant room is an afterthought and this is where problems arise.

The main doors to the plant room should be designed and sized in such a way that the future replacement of filters can be carried out as easily as possible. The height of the plant room must also be sufficiently above the filters to allow you to change the filter media easily.

Storage of chemicals should also be planned in at the design stage and be an integral part of the space. Chemicals and other supplies should not just be stacked in areas that have been set aside for equipment operation and maintenance.

Planning

Clearly common sense, as well as maintenance and basic health and safety needs, demand that all plant rooms should be planned in advance. It is important not only to check the absolute size of the room but also to make sure that installation work and service routes and coordination are not impeded. You will need to determine sensible positions for: suction and return pipes;

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backwash drains; floor drains and equipment drains; ventilation ducts; equipment; incoming service terminations; access space; access doors to the pool room; access doors to the external areas; external walls for ventilation and boiler flues; and storage areas for spares, such as air filters, fan belts, light bulbs, chemical injectors, test equipment. You will also need to provide a location for water tests and records storage that is easy to access and work in.

The ventilation to the plant room must provide at least four air changes per hour, ideally consisting of both low-level and high-level ventilation. If natural ventilation cannot be achieved, then a mechanical ventilation system should be installed. Any mechanical system should be discussed with relevant companies to ensure it will be fit for purpose.

Noise from the plant room, both audible and vibratory, may impinge on neighbouring properties and must be avoided where possible and common sense again dictates that siting the plant room as far away from neighbouring properties as possible is desirable. Having said that, you should also avoid having the plant room adjacent to internal areas that are sensitive to noise, such as cinemas, bedrooms and consulting rooms.

Still on the subject of noise, the maximum acceptable sound pressure levels heard by neighbours will vary between local authorities as it will normally depend on existing background levels. In general terms, in built-up areas it is often the case that any noise generated by new equipment should be at least 10 decibels less than the current noise levels. In more rural areas the sound pressure generated by new equipment at the boundary with neighbouring properties should not exceed the current level. In real terms, that may mean it is possible to have a three-decibel rise at the boundary when the existing level and the new plant are combined. This would need to be agreed with the relevant local authority, however, as part of the planning process.

Plant rooms should have a light level sufficient for the maintenance and operation not only in the day time but also at night, when the backwashing of the filters should be taking place.

Installation of equipment

All equipment must be installed in accordance with local and national laws and regulations, manufacturer's instructions, SPATA standards (where applicable) and any other appropriate recommendations, such as health and safety requirements. All the necessary health and safety signage should, of course, be installed at the same time.

Having had the equipment installed, it is important for you to know what equipment you have in your plant room and a site-specific manual should be available; all valves and controls should be clearly, professionally labelled. The manual should include all makes and model numbers, and where replacement parts and equipment may be obtained. An up-to-date valve chart and system diagrammatic should be wall-mounted behind a protective clear plastic screen and the valve numbering should clearly identify all of the plant and valves. This will enable operatives to undertake maintenance and repair duties safely, and will also assist in the training of new staff.

Chemical storage

The storage of chemicals should be separated from the rest of the plant room itself and there should be easy access for the delivery of the chemicals required. The chemicals should be identified and their name and type should be clearly visible. All chemicals within the storage area should be separated from each other and be placed in banded areas if necessary. These areas can benefit from being lined with acid-resistant render and there should be personal protective equipment (PPE) immediately available. PPE should include all recommended handling equipment, such as goggles, gloves aprons and overshoes, to ensure operatives are fully protected. Ideally an emergency drench shower and a sink with running mains cold water should be provided along with an eyewash bath. It goes without saying that this safety equipment should ideally be stored adjacent to the sink and that there should be adequate drainage from this location.

Chemical dosing equipment and particularly day tanks should be positioned in such a way that the different chemicals being used are separated and as far apart from each other as the plant room space allows, with all the dosing lines fully protected along their whole length. High-level dosing lines should be avoided if at all possible. The chemical store, like the rest of the plant room, should have a minimum of four air changes per hour, ideally situated at high

and low level.

Though not exhaustive, these recommendations should help you focus on some of the key areas to ensure that your plant room is fit for purpose and not an area to be dreaded by your staff and contractors alike.

This article has outlined the main requirements for plant room design and management, and has been jointly authored by Jim Gordon (from Jim Gordon Associates), Peter Lang (SPATA Technical Advisor) and John Scott (Engineered Pool Supplies). Jim, Peter and John are all members of the SPATA Technical Committee.

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