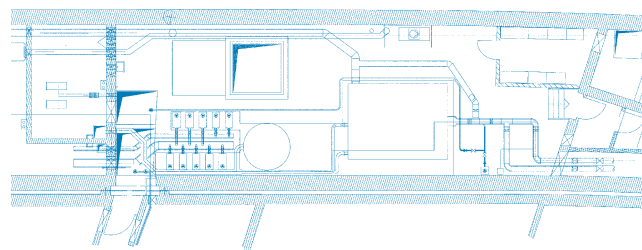


Section through  
pond drainage and  
storage cistern



emissions are kept reduced to a minimum.

The size of the pumps should not be decided until the volume of circulating water has been fixed. The manufacturer's technical specifications can be used as a guide. In the case of prototype features with special flow effects the size of the pumps should not be fixed without testing in a full-scale model. A certain circulation reserve should always be built in when choosing the size of the pumps so that the water quantities can be regulated if necessary. Maximum performance in relation to energy used can be achieved by pumps with automatic revolution speed controls, but this elaborate technology does not come cheap.



**Filters:** In nature water is continuously filtered in a number of ways such as percolating through vegetated soil, or by water animals. Filtering of this kind is also needed in artificial waters, especially when a lot of foreign bodies may find their way into it. Man contributes to this as well as nature – for example with plastic bags, cola cans, food scraps, plastic straws, cigarette ends and so on.

The first planning aim should always be to avoid dirt and rubbish entering the water in the first place. Where this is not possible the substances, which are often floating and do not dissolve, must be filtered out as soon after they enter the water as possible. In the case of circulation features this is done by coarse pre-filters like skimmers, rakes of perforated metal sheeting that are usually built into the feedback to the cistern. Various grades, from coarse to fine filtering, should be chosen, according to the amount of dirt involved. A filter with a mesh larger than 10 millimetres is considered coarse in this context. These should be simple and quick to handle, as otherwise manual cleaning tends to be carried out rarely or not at all. Stainless steel has proved its worth as a construction material for these pre-filters.

It makes sense to use automatic filter systems as well as pre-filters in more complex features; as a rule they are installed on the delivery side of the pump. These filters, including fast sand filters and micro-sieves, are outstandingly well suited for removing fine particles like weeds or floating matter from the circulating water. Maintenance requirements are low, as these filters can be set to clean themselves automatically from time to time. Automatic filters should be fitted in the bypass



Section through  
equipment room