7. POOLS AND WATER FEATURES

OVERVIEW

In this module, we cover the following topics:

- The role of water in the garden
- Pools, formal and informal
- Water features
- Pumps and filtration
- Water safety

Water will always play an important role in the garden, and the earliest garden designers recognised its decorative qualities alongside its functional qualities of irrigation and cooling.

Modern day gardens are using water in many creative and traditional ways, with designers constantly striving to achieve the most from this versatile resource.

In this module we’ll be looking at the different effects water can bring to a garden, and the ways and means you can achieve them.

The first distinction we will make is that between pools and water features. Whilst a pool is always considered to be a water feature, a water feature is not always necessarily a pool and the reasons for having one or the other can be quite different. Firstly we will look at pools and then later in the module we will look at other water features.

POOLS

Pools can be split into two main categories:

- Formal
- Informal

We look at each of them next.
FORMAL POOLS

Formal pools usually have a strong geometric shape, and are used to make a statement. They can be raised to produce a stronger effect, or they can be used to create a focal point.

Many courtyard gardens have a formal pool at the centre, which is used to reflect the shape of the surrounding walls whilst creating a focal or pivot point.

You could create a focal point without using water. A planting group or statue would serve equally as well, so why choose water over other options?

Typically we find courtyards at places of work, where windows open out on to a courtyard, and doors lead to it. And so it provides an area for taking breaks. Using water in these areas can be soothing and enchanting, both to those directly using the area, and for those lucky enough to have windows opening on to the area.

Domestic situations will have similar requirements and, like an office, may benefit from the cooling effect that water has if placed in a warm courtyard.

Some courtyards may appear too small to accommodate a pool in the middle without crowding the space and making it difficult to walk around the area. Here are a couple of ways that can help to eliminate these difficulties.

Figure 7.1 is a courtyard with a square pool in its centre. You can see how this could make the area feel restricted, especially if the pool is raised.

In Figure 7.2, we have cut the pool’s corners to create more space. But we have kept the formality, and not greatly reduced the size of the pool.
You may feel that the corners of the courtyard are now a little redundant and are never going to be properly used. If so, you could incorporate seating, planting or a statue to finish the area off, as in Figure 7.3.

You can use formal pools to lead the eye by creating long bodies of water in a geometric frame.

Classic examples of this can be seen at some of the stately homes, the one at Hampton Court being a particularly good example. This doesn't mean to say that you need to have lots of space to create these features. As with most other things, you can scale it up or down to suit its surroundings. Remember that the pool need not lead up to a point, but may be sited so that it runs across an area - to give the effect of a greater width.

RAISED OR FLUSH?

We have already mentioned that a pool can be raised or flush with the ground. Sometimes it’s best to have a combination of the two.

A raised pool has the benefit of less excavations being needed, and you can use the surrounding wall as a convenient seat. The walls are also useful for keeping things from falling in; most importantly children and animals but also toys and leaves.

The height of the wall is crucial if it is to act as a seat but the depth of water may need to be different to cater for the intended use. Fish need at least 600mm of depth in which to live, especially if the pool is entirely raised. This is because the fluctuation in temperature will be greater than one which is sunk into the ground. This may be considered too high for the seat to be comfortable, and if so you have two options.
Firstly you can set the seat below the top of the wall (Figure 7.4). This will involve more construction and usually result in a larger surround.

A simpler solution and one, which is more beneficial to the environment inside the pool, is to dig a hole for the pool to sink into to allow for the additional depth required (Figure 7.5). The water below ground will be slower to change temperature during the day, and will be a stable environment for the fish to live in over winter.

Bear in mind when creating seating on the edge of a pool that this isn’t the best vantage point from which to view the pool. That’s because the person will have their back to the pool or at best, be side on; and this position won’t be comfortable for any great length of time. If a client wants to sit and watch the pool rather than just spend five minutes there with a cup of coffee, you should include a seating area that faces the pool.

**EXERCISE 7.1**

Why might you choose to raise a pool rather than leave it at ground level?

**INFORMAL POOLS**

Informal pools blend into the landscape. Like formal pools, they can be used to attract attention and draw the eye, but tend to be subtler. The edges are usually less well defined and the shape is random.

You will often see planting seamlessly drifting into the pool forming small bays and inlets. These will appear to be absolutely natural, but are easily created with some cunning design.
Figure 7.4 shows how you can arrange a single liner that allows a bog garden and marginal planting to get right into the pool without the soil becoming hopelessly mixed with the water.

The same effect can be achieved to a lesser extent by standing planted pots on shallow shelves around the edges of the pool and planting right up to the outside edges. As the plants mature they will disguise all traces of the pots and the edges of the pool.

When designing an informal pool it’s easy to get carried away with the shape. Although butyl is flexible, a poor design can waste much liner or you may not be able to construct the pool without welding the liner.

Sometimes this can’t be avoided, but generally a simple shaped pool can be embellished with planting both on the inside and the outside to give the impression that the water margins end in places other than they really do.

One such feature is to construct a dry riverbed or wadi, which can link one pool to another, or a pool to another feature. The river bed need not have a liner in at all, as it is never going to have to retain water. All you need is some stone and rocks for the bed and some planting along its banks to give the illusion of it being an extension of the water feature.

Some of these can be so convincing that they can be used entirely by themselves without the need for water at all!

You can also make a pool look larger than it actually is by adding a shore. This extension can be sand, gravel or larger rocks.
EXERCISE 7.2

1. What are the essential differences between formal and informal pools?

2. Design a formal pool for the courtyard of a modern office block. Label the main features, and state the reasons for your choice.

WATER FEATURES

The ponds we’ve been discussing are, of course, a water feature; but in this section we will be looking at other ways of introducing water into the garden either in combination with a pool or without the use of a pool altogether.

Strictly speaking, a pool is just a still body of water, which can be great for reflections and keeping water lilies, which thrive in the calmness. If movement is what you are looking for, or perhaps some sound of water moving over rocks, you’ll need some kind of water feature.

Some examples that spring to mind are the babbling brook, the crashing stream, and the oak barrel. There’s also the water pump, the simple tinkling fountain and the ubiquitous small boy peeing into the pool.

More modern day examples have seen the popularity of things like the millstone, drilled boulders, tiered copper waterfalls, and leaping and foaming jets of water.

Whatever your taste, from the classical to the comic, there’s something out there for everyone; and water provides a great opportunity to personalise the garden and have some fun.

All water features work on the same principle, that of recycling a body of water from a reservoir through the feature, and then back to the reservoir. An example of this can be seen in the module on Maintenance (module 11).

As we have seen, the water can be returned to the pool in many ways, and each provides its own special effect.

FOUNTAINS

When adding fountains or water jets to a formal pool, try not to lose the formality imposed by the pool structure. These jets can be used to enhance the effect.

Sometimes a singular jet may be out of scale with the rest of the pool. But
on occasion a windy location may force you to opt for a smaller jet than you might otherwise have chosen.

Multiple jets may well be the answer and can strengthen the formality. A circular pool usually suits a central jet surrounded by jets around the edge or the pool spraying water in towards the centre. To remain balanced, a longer, more oblong shape may need two or more central jets, and possibly some along its edges.

Using multiple jets gives you an ideal opportunity to plumb them in sets, which can be turned on independently for different effects.

**EXERCISE 7.3**

Draw some strong geometric shapes to represent a pool outline and add some water jets in at different positions to see the different effects that can be achieved. You can try squares, rectangles, circles, octagons and triangles among others.

**THE SOUND OF WATER**

The sound of water can be soothing or invigorating, and sometimes even irritating. So it’s essential to bear in mind the effect you’re trying to achieve from your water feature.

Water falling on to rocks or another hard surface will have a slapping sound, whereas water falling into water will sound different.

A large volume of water falling directly into water will have a deep sound. The pitch of this note is slowly increased as the volume of water is lessened until you end up with a rather musical note when water falls as small droplets.

Smaller droplets of water can be achieved by forcing water at pressure through small holes. This will give off a livelier, hissing sound.

Some small bubble fountains and stream heads will have water welling up out of the ground, not really breaking into what you would call a fountain, but enough to create a gurgling and babbling sound.

It’s quite possible that you will want different moods and effects for different times of the day, or to change the water as your mood changes. So when designing water features, try to incorporate a flow control, or allow
parts of the feature to be turned on and off separately. Think of it like the lighting in a living room; usually there are additional wall lights that can be used separately to create a different mood in the room, and dimmers are often added to increase the options available.

**THE LION MASK**

The lion mask is where water comes out of an animal’s mouth, usually in a wall. It operates in essentially the same way as other self-contained water feature. But the main difference is that it needs to be built into a wall.

This is fine if you intend to build a new one, but it presents a few new problems if you intend to use an existing structure.

The problem lies with getting the water to the mask without the pipe work being evident. Sometimes you will see that a channel has been cut out of the brick and the pipe is sunk into it and mortared over. This is clearly not the answer and looks appalling. If you are lucky and have access to the back of the wall, life is simple. You need only take the pipe through the wall at its base and up the back of the wall, returning through the wall behind the mask.

The only other way to achieve a similar result is to build another wall in front of the original one and fix the mask to it, running your pipe work between the two walls.
STREAMS

Streams are a large version of a recycling water feature. Usually they take their water from a pool, which acts as its reservoir. If you’re looking for a child-safe feature or just don't want the hassle of a pool, it’s just as easy to build an underground reservoir, to which the water can return through a bed of gravel or rocks.

Whichever method you choose, it’s crucial that the reservoir can hold enough water to prime the system. Priming the system is the process which is undertaken each time the system is turned on. Firstly, water has to be pumped up to the head of the waterfall; this may well be a header pool which must fill up in order to overflow into the next level.

Subsequent pools must also fill before the water eventually returns to the reservoir whence it came. This can represent a large volume of water, and if you don't get your calculations correct you could find that the reservoir has drained to empty before the water has gone full cycle.

If your water is taken from a pool, it’s unlikely that it will drain completely. But the water level may drop so much that it becomes unsightly, exposing ledges or liner.
If you have an automatic top up system operating on the level of the bottom pool, the pool will soon fill up. However when the stream is turned off, all the water will return to the bottom pool, possibly causing it to flood.

Most streams will employ the use of rocks, and some of the more ambitious projects use larger rocks and boulders. When designing these types of projects, check the access to the site: it may be necessary to lift some of the pieces with a crane or other mechanical device.

**Filtration**

From pools to small bubble fountains, all water features need ongoing maintenance to keep them clear and healthy. During the summer months, this can be as often as once every few days.

A simple water feature will usually just need its pump filter cleaning, which is a simple enough job. Well, it will be so long as the pump isn't out of reach in the middle of a pool or buried under tonnes of rock in a bubble fountain.

Those are just two problems you can avoid by a little careful planning at the drawing board.

**Fish**

A large pool used to keep fish, and more especially Koi, will need an extensive filtration system. This can involve building another pool half as big as your main one, just to act as a filter.

Koi keeping is too complex a subject to go into in any detail in this course; just beware that they have special needs over and above a simple fish pond and should not be undertaken lightly.

**Overflow and Drain**

One very useful feature, which can be used for both draining the pool and as an overflow, is described below.
As can be seen from Figure 7.6, you insert a plastic pipe into a socket located at the lowest point in the pool. As the water level reaches the top of the pipe, it will overflow into it and go off to the main drain.

To completely drain the pool is simply a matter of pulling the pipe out of the socket, allowing the water in the pool to escape to the main drain.

This type of device will need good forward planning, to ensure that the pipe work is set in low enough and has an adequate fall to the drain.

**PUMP LOCATION**

Pump location can make a big difference to pool clarity. If the pump is sitting on the floor of the pool, it is likely to pick up any debris there and either clog its filter or pump it back round the pool.

One simple way of avoiding this is to raise the pump from the floor on a slab and a couple of bricks.

If you're designing a natural pool, which will contain deliberate quantities of soil, there may be nowhere to site the pump inside the pool that doesn’t disturb the sediment. To overcome this, you can design a separate chamber outside the main pool to house the pump, the two being connected by an underground pipe. See Figure 7.7.
**POOL SIZE**

The size of a pool really depends upon its intended use, although a pool much smaller than 2m x 1.5m can look a little lost and will be of limited use.

The depth of a pool really needs to be around 450mm - 600mm, but this will depend upon conditions around the pool, such as shade and the average temperature.

Remember that the algae in the pool are fed by sunlight hitting the surface of the water, and the increased temperature of the water near the surface. So try and achieve a good balance between the volume of water in the pool and its surface area. Generally, the larger the pool the deeper you can make it, which increases the volume and helps to maintain a more stable environment.

If designing for reflections, remember that a deeper pool will give better reflections. Shallower pools should have their base painted black if constructed from concrete, as this will help to increase the waters reflective qualities.

If you’re intending to stock the pool well up with planting, be sure to allow for this in the pool size, otherwise you may find that you end up with only a
small area of water left visible.

**SAFETY**

It’s a sad fact that you can drown in only a few inches of water. It is also true that water is fascinating to children. So pools in the garden can be dangerous.

Unfortunately some clients won’t take advice on this, and see any kind of water as a potential danger. But with careful planning and design this need not be the case.

Standing water, such as that in pools, presents a high level of risk to youngsters and animals. You can deal with this in the following ways:

- Remove the pool, and replace it with a water feature that has no open reservoir.
- Cover the pool in a mesh strong enough to take the weight of a child. This mesh need not be visible and can be set just below the surface of the water.
- Fence the area off, or plant shrubbery around the edges to make access difficult.
- People are less likely to fall into raised pools. But if the wall has a flat coping, ensure it’s well secured, as people will sit on it and children often run along it.
- Even if you think no-one will fall into the pool, you should always allow for that eventuality. The sides of a pool will soon become slippery, and if they’re set at a steep angle it will be difficult to climb out of. To combat this, the sides should either be vertical, so that you can reach the edge and pull yourself out, or be pulled out by others. Alternatively, the sides can gently slope down to a shallow shelf, which you can stand on.
- Features such as a beach gently rising from the pool will not only allow humans to escape but also any small animals that may fall in.

**EXERCISE 7.4**

1. Choose five types of water feature that are available off-the-shelf. It could be anything from a pre-formed plastic pool to a lion mask. Visit garden centres or DIY stores to see what you can find.

2. Give examples of the type of garden they might suit, or what type of person might be attracted to them.
NOW WATCH A VIDEO

How to maintain a water garden
http://www.youtube.com/watch?v=xJ7vjrR-OmA

SUMMARY

1. You can identify the differences between formal and informal pools.
2. You know how to position a water feature and recognise the factors affecting this decision.
3. You know how to use pumps and filters to create your water features.
4. You are able to construct water features safely and to a high standard.
5. You realise the importance of water safety.
**TODAY'S TASK**

Peter and Helen Woods are aged 65 and 60 respectively. He has difficulty walking, and on Tuesdays and Wednesdays they look after their two grandchildren aged 4 and 6.

They have a suburban garden, which is 30m (100ft) long and 15m (50ft) wide.

1. Design a water feature for the Woods. They want a water feature they can sit by and enjoy a drink in the evening.

2. Draw the water feature, and label its main parts. Include the pump and piping, and include a cross-sectional drawing if appropriate.

3. List six points that you considered when planning the feature.
ANSWER TO THE EXERCISES

7.1 WHY CHOOSE TO RAISE A POOL RATHER THAN LEAVE IT AT GROUND LEVEL?

1. Less excavation is necessary.
2. Provides a seating area
3. Walls can act as a decorative feature
4. Easier access for the disabled
5. Easier positioning of underwater lighting
6. Essential if pool was to be part of a roof garden
7. Adds height and balance to the overall garden design.

7.2 DIFFERENCES BETWEEN A FORMAL AND INFORMAL POOL

<table>
<thead>
<tr>
<th>FORMAL</th>
<th>INFORMAL</th>
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<tbody>
<tr>
<td>Strong dramatic statement</td>
<td>Blends into the landscape</td>
</tr>
<tr>
<td>Geometric shapes</td>
<td>Random shape</td>
</tr>
<tr>
<td>Attract attention and draw the eye</td>
<td>Edges less defined</td>
</tr>
<tr>
<td>Can be visually stunning</td>
<td>Planting edges from bank to the pond</td>
</tr>
<tr>
<td>Suitable for formal grand setting or modern context including courtyards</td>
<td>Suitable for a natural setting</td>
</tr>
<tr>
<td>Fairly low maintenance</td>
<td>Can require high maintenance</td>
</tr>
<tr>
<td>Limited wildlife</td>
<td>Home to a large range of wildlife</td>
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7.2 (CONTINUED) DESIGN A FORMAL POOL FOR THE COURTYARD OF A MODERN OFFICE BLOCK. LABEL THE MAIN FEATURES, AND STATE THE REASONS FOR YOUR CHOICE.

The factors that you would take into account are:

1. Ability to walk around the pool
2. Accessibility from the office (a path)
3. Visibility from the office (in a four storey building, those on the ground floor would have a different view from those on the top floor)
4. Audible water
5. Visual interest from a distance (a fountain)
6. Seating
7. Elevated or sunken
8. Planting
9. Lighting