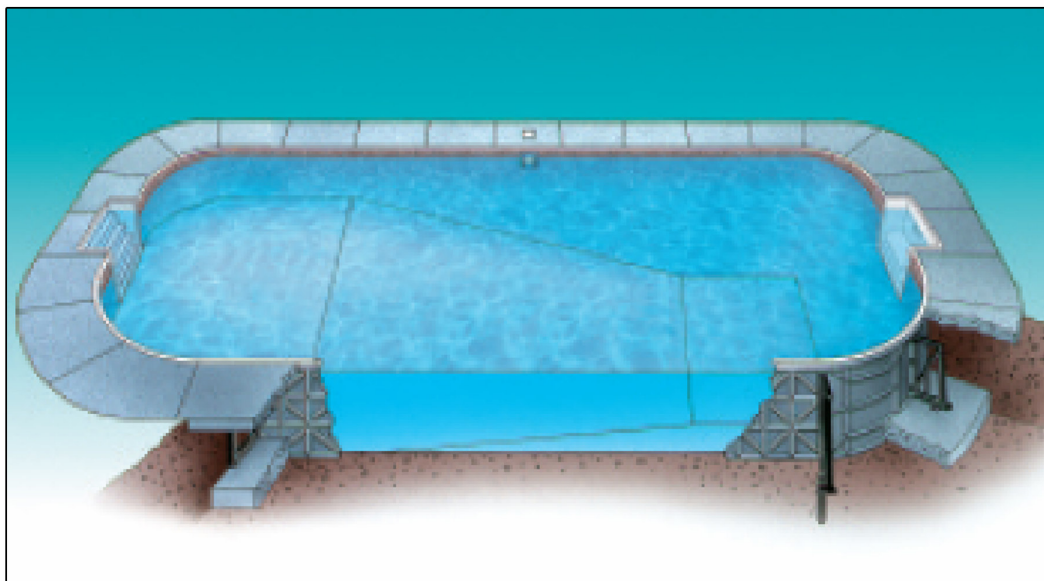


[www.1st-direct.com](http://www.1st-direct.com)

# Panel Pool Kit

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## Installation



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## Why Structural Foam?

Structural foam is a relatively new concept that is rust, corrosion and rot proof. The product is light and easy to handle compared with other traditional products and does not absorb water. Structural foam in simple terms is a very hard, solid core material that has very high strength to weight ratio. With these advantages in mind, combined with the product's versatility, it is easy to see why structural foam has replaced base materials in many industries.

## Planning Permission?

The construction of a private open air swimming pool in the back garden of a domestic property in the U.K. does not usually require planning permission. However, if your property is listed, sited in an area of outstanding natural beauty, take up 50% or more of your garden or the pool is to have a permanent enclosure then planning permission will certainly be required. The one exception to this rule is the air dome type of structure. We recommend that you contact your local authority in order to check the requirements of local legislation before proceeding with construction. If the pool is to be enclosed or is to be used for commercial purposes then both planning permission and building regulation approval are required.

## A Brief Description of the Construction

After excavation to the required dimensions the Polymer Panels are erected around the pool perimeter on a 400mm wide (16" ) shelf. After confirming the pool shelf is level, the pool panels and support braces are assembled in position, with steel locating stakes driven into the soil to line up and finally locate the walls correctly . Concrete is then poured between the back of the panel and the overdig to a depth of 100mm (4") to permanently fix them in place. The internal base of the pool is screeded with a 50mm (2") layer sand/cement to the specified profiles. Polyethylene and felt underlay's which are available as optional extras for the wall and floor respectively can then be laid to help disguise any slight imperfections, as well as protect the liner and help insulate the pool. A vinyl liner is then installed internally to provide an attractive and watertight finish. As the pool fills with water, the pool is backfilled with pea shingle to within 150mm (6") of the top of the wall. A 150mm x 150mm (6" x 6") reinforced ring beam is then constructed around the perimeter of the wall system. At this point any concrete anchorage pads for ladders etc, are cast before the copings and surround paving can be laid.

## Pool Location?

Ideally the pool should be sited well away from trees to avoid leaf debris. Also bear in mind that hedges, trees, fences and walls may reduce the amount of sunlight reaching the pool area. Other important points to consider are as follows:

1. Ensure that NO electrical cables, water pipes, gas pipes, sewage pipes, underground phone lines or other obstructions run under the proposed location of the pool. Utility companies do offer a 'dial before you dig' service.
2. The filter plant should be enclosed and sited as close to the pool as possible. This will protect it from the elements, help pump efficiency and reduce the cost of pipework. The filtration plant should be installed on a level base, ideally at water level (try to avoid installing your filtration plant more than 300mm ( 12" ) above water level), if this is not possible then no higher than the surrounding paving (this is to avoid difficulties when priming the pump).
3. Availability of water supply.
4. Availability of a suitable discharge point for the disposal of waste water used in the backwashing of the filter. NOTE: local authorities do not normally permit the discharge of chemically treated water into their foul drains.
5. Proximity of changing facilities and toilets to the pool.
- 6 In the interests of safety, the access to the pool should be from the shallow end and we suggest that the pool area should be fenced off, to minimise the possibility of accidents occurring when the pool is unattended.
7. If the pool is to be heated, then the availability of an adequate oil, gas or electricity supply to the heating unit should be considered. Also the provision of an oil or gas tank if required. If a heat pump or electric heater is to be used, then the electrical supply should be checked to ensure it will accept the additional load.

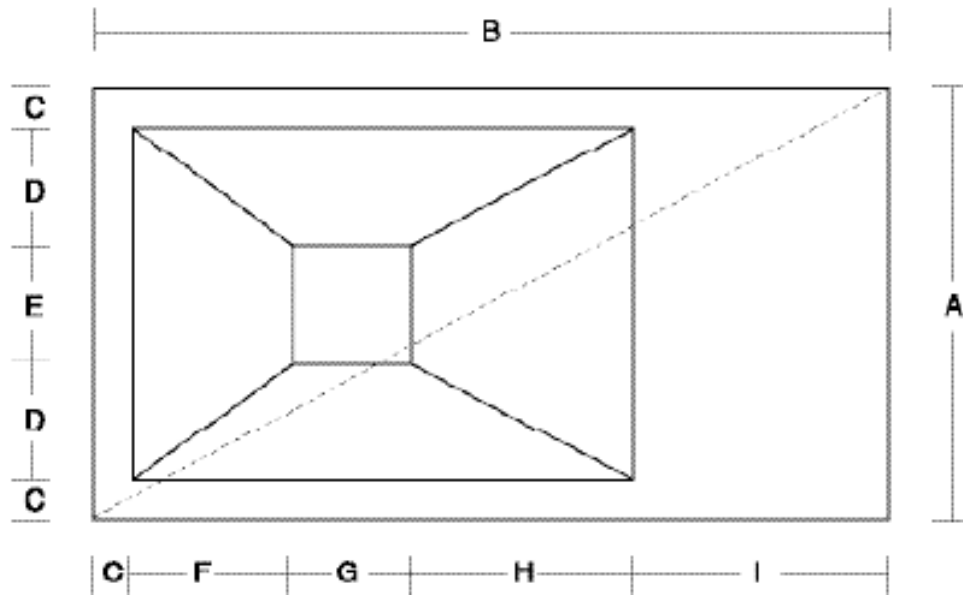
## Datum Level

The Datum level is the top of the pool wall and is of crucial importance as it is probable that it will adjoin an existing terrace or patio. Drive a peg into the ground close to the pool but away from the excavation hole. This becomes the 'Datum Peg'. The top of this peg will be the top of the pool wall and the reference point for all measurements downwards. The finished height of the pool coping will be 63mm (2 1/2") above the Datum peg. This measurement represents the bed and the thickness of the coping. In order to accurately transfer the excavation levels from the Datum Peg it is recommended that a Laser level is hired.

## Dimensions

Figures A and B (see page 3 & 4) show the excavation dimensions for the 42" deep polymer panel pool range. A 400mm (16") overdig all around the pool is included to allow for the 100mm (4") pool wall and a 300mm (12") backfilling clearance. A small amount of extra local digging out will be necessary around the rear of the braces. 50mm (2") is included for the sand/cement floor screed. No allowance is made for any extra digging necessary for the perimeter wall foundation or for any overdigging in the event of clay sub-soil conditions

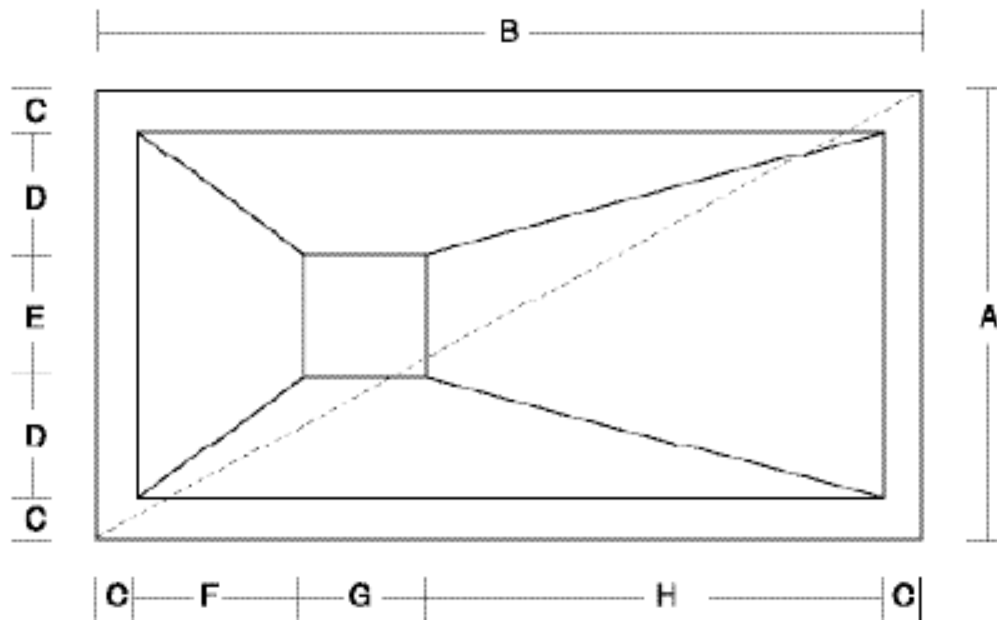
# Excavation Dimensions for Shallow End Hopper



# Excavation Dimensions for Wall Depth 3' 6"

Pool Size	A	B	C	D	E	F	G	H	I	Hopper Depth	Diagonal
24' x 12'	14'8"	28'8"	1'4"	4'	4'	5'	4'	7'	9'4"	5'3"	30'3"
28' x 14'	16'8"	30'8"	1'4"	5'	4'	5'	4'	9'	11'4"	6'2"	34'8"
30' x 14'	16'8"	32'8"	1'4"	5'	4'	5'	4'	11'	11'4"	6'2"	36'8"
32' x 16'	18'8"	34'8"	1'4"	6'	4'	5'	6'	11'	11'4"	6'11"	39'4"
36' x 16'	18'8"	40'8"	1'4"	6'	4'	6'	6'	14'	13'4"	7'8"	44'9"
40' x 20'	22'8"	42'8"	1'4"	7'	6'	6'	6'	16'	13'4"	7'8"	48'4"

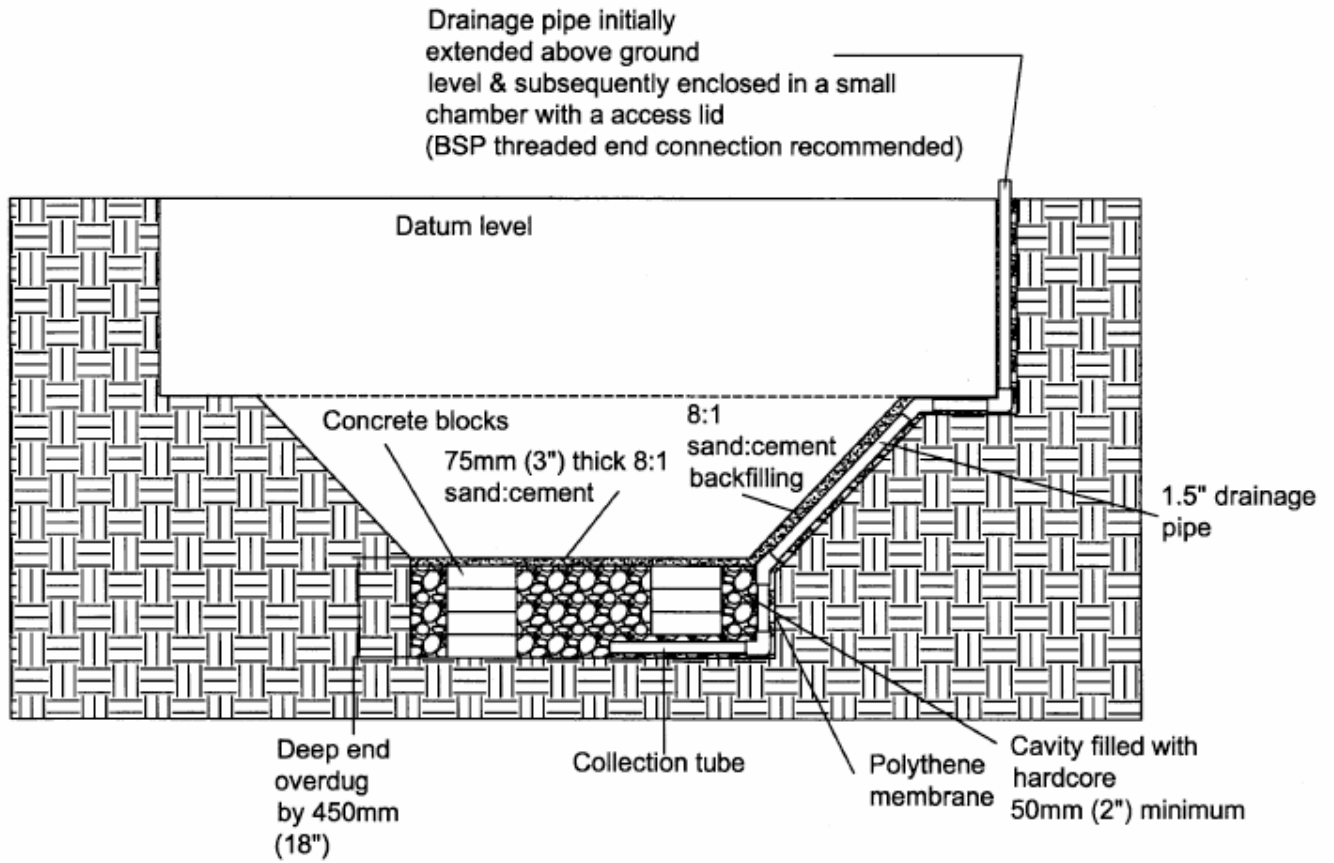
## Excavation Dimensions for Wedge Hopper



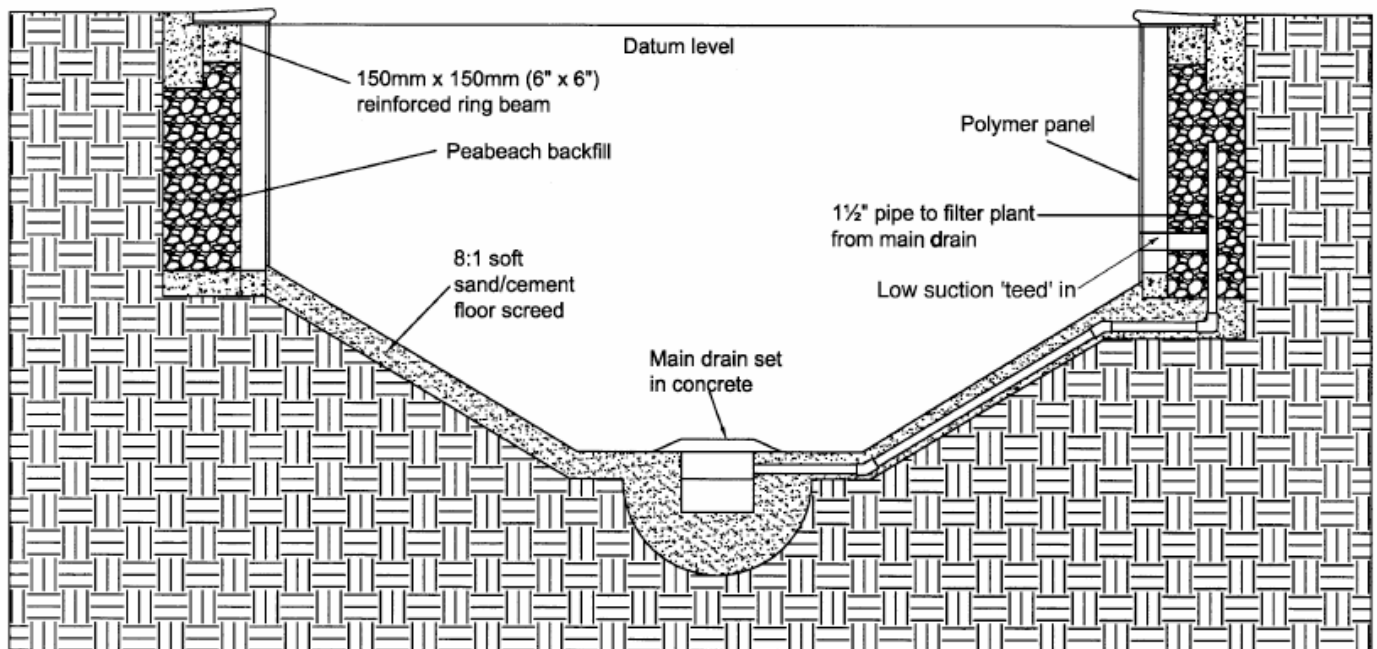
## Excavation Dimensions for Wall Depth 3' 6"

Pool Size	A	B	C	D	E	F	G	H	Hopper Depth	Diagonal
24' x 12'	14'8"	26'8"	1'4"	4'	4'	5'	4'	15'	5'5"	30'5"
28' x 14'	16'8"	30'8"	1'4"	5'	4'	5'	4'	18'	6'2"	34'8"
30' x 14'	16'8"	32'8"	1'4"	5'	4'	5'	4'	21'	6'2"	36'8"
32' x 16'	18'8"	34'8"	1'4"	6'	4'	5'	6'	21'	6'11"	39'4"
38' x 16'	18'8"	40'8"	1'4"	6'	4'	6'	6'	26'	7'8"	44'9"
40' x 20'	22'8"	42'8"	1'4"	7'	6'	6'	6'	28'	7'8"	48'4"

# Figure E



# Figure F



## Marking out the Excavation

Once you have selected the correct dimensions for your pool, mark out and drive in the corner pegs, making sure the diagonals are equal.

Measure out the deep and shallow end dimensions and drive in additional pegs outside the proposed hole, so that they can be referred to whilst the pool is being dug. Following the dimensions given, drive in further pegs outside the excavation to indicate the pool wall dimensions. Connect all the pegs together with string and using the string as a guide, mark the lines on the ground using cement or lime. If possible drive all the pegs in to the same depth as the datum peg so that a check can be made of all levels by measuring from a line stretched between pegs.

Note: it is important that all the internal corners of the pool walls should form a rectangle with diagonals that are equal, thus ensuring that the pool sides will be at 90° to each other

## Excavation

Digging a pool by hand is hard work and time consuming. Hiring a mechanical excavator (e.g. a JCB or similar) will save time and much effort, but it must be remembered that the bigger the machine the wider the access required. An experienced operator can dig a pool in a day with a larger machine. If good access is not available, smaller, slower machines can be hired. If you cannot make use of the soil from the excavation, provision must be made to cart this away and this will involve extra cost and time, with possibly the need for hiring one or even two dumper trucks (if the soil has to be carted more than 15M from the hole to the truck). Calculations have to be made with regard to cost of hiring all equipment.

If the site is sloping or conditions are muddy, consider hiring a 4 wheel drive dumper. Don't forget to save the top soil and store it in a separate area for later use in landscaping!

Take care not to overdig the pool floor. any hollows must be filled with a mixture of lean sand/cement (18:1) rather than any soil that had been removed, this will help to avoid settlement problems at a later date. It is recommended that the final dimensions of the pool are hand dug with a spade to ensure an accurate final shape.

## Underfloor Drainage (if required)

If your soil is chalk, gravel, sand, or shale, you will probably not need to lay drainage, as the site should allow water to drain away freely. If your soil is clay, then installing drainage will have to be considered to prevent water building up beneath the liner. Ideally a channel for land drains should be dug from the lowest point in the pool excavation to another part of the garden. This can then have the drains laid in it and backfilled with shingle, bearing in mind of

course that this is really only suitable for areas where the land slopes down and away from the pool or is close to an existing drainage ditch. If the site is fairly level then the following procedure is the recommended alternative. The instructions below should be read in conjunction with Figures E and F.

The lowest point of the pool excavation will need to have a 450mm (18") deep drainage sump dug out. A polythene sheet should then be laid over the base of the hole and concrete blocks placed around the perimeter of the sump to prevent the sides collapsing. From the centre of the sump run a 1 1/2" pipe up the sloping sides of the excavation.

A collection tube (a perforated section of pipe with one end open) should be fitted to the sump end of this pipe and the pit filled with clean rubble. Minimum size of the rubble to be 50mm (2") to prevent clogging of the collection pipe. Lay an 8:1 lean sand/cement mix approximately 75mm (3") deep over all the sump area to bring the base level back to the required depth as per the dimensions table.

Note: The installation of the main drain suction fitting, as detailed on page 12, should be carried out in conjunction with this process

Extend the pipe from the sump under the pool wall foundation and extend it vertically upwards behind the pool wall. The pipe can be used during construction to remove any ground water build up, by using a diaphragm pump (this can be hired). Don't forget to pump any water well away from the site in order to prevent it returning back into the excavation.

When the pool is completed, the pipe can be enclosed in a small chamber, complete with access cover, it is recommended that a socket with a BSP female thread be fitted on the end. This will allow a pump to be easily connected for removing water from under the pool and a plug to be fitted when not in use.

## Panel Shelf

The excavator operator should try to dig the floor dimensions as close to specifications as possible. This will save many hours of future hand labour. All earth removed from the hopper should be taken away by truck unless additional fill for grading purposes is required. After the hopper has been excavated, the pool layout should be restaked and restrung at the 42" level. The pool layout will establish your guide for panel layout. Stake and string accurately. Using the laser level, set all layout strings to the 42" depth at the point where the string wraps around the four corner stakes. Using your levelled string as a guide, complete the panel shelf by tamping and compacting the ground all the way around the outside of the string. The final shelf should be at least 16" wide. If this step is performed properly, the need for future shimming of the panels will be minimal.



## Main Drain Suction Pipe

At this stage a 1.5" pipe should be installed running from the the low point of the pool where the maindrain will be installed, up the sloping side of the basin, across the panel shelf and vertically up behind the wall panel bearing in mind the low suction will be 'teed into it. This pipe should run horizontally from the centre of the sump area, the depth being governed by the side outlet connections of the maindrain when fitted at their correct depth. It should then run up within a shallow trench in the sloping side and panel shelf before rising vertically. Both ends of the pipe should be covered with plastic sheeting and adhesive tape to prevent any debris to become trapped inside. All pipes should be laid on a shallow bed of sand.

## Installation of Skimmers, Wall Fittings & Underwater Lights

If you are purchasing pre-cut panels, you will find that these are prepared to accept Certikin wide angle skimmers and underwater lights. Comprehensive fitting instructions are included in the boxes in which the units are supplied and these should be closely followed.

If you are purchasing uncut panels, the rear of the panel walls are clearly marked indicating suitable positions for the skimmers and underwater lights but not for the return inlets and vacuum sweeper suction points. Care must be taken when selecting positions and drilling holes for these fittings, so as not to damage the structural integrity of the panel. Use the clamping plates from each fitting as a template for marking out, cutting the openings and drilling the fixing screw holes.

It is recommended that the vac point be positioned as near to the centre of one of the long sides of the pool and approximately 300mm down from the top edge of the panel.

Return inlets should be positioned approximately 450mm below top edge of pool and as far away from corners as possible and the low suction point 300mm from the bottom of the panel. They should be placed so as to give best circulation of water in the pool as possible.

## Wall Erection

A level foundation of undisturbed earth for the ledge is desirable, however most excavations are not perfectly level, but with the adjustable bracing system, the walls can be levelled with the use of the built-in levelling stake system (See Figure H).

As final hand trimming of the excavation is being made, the structural foam pool panels should be lowered on to the working ledge of the excavation. Use the panel layout drawings as supplied in the specification sheets for placement of the different size panels. The braces should be laid out around the perimeter of the pool close to each panel joint. The braces are used to secure the panel flanges together. You will notice that all items used to hold the walls together are held to the interior of the brace by a small strand of structural foam. As you

need these fastening devices, you simply break them loose from the brace. The fastening devices used to secure the brace and panels together are serrated wedges which lock the walls together. With a brace by your side, line up two panels, butting together the two mating flanges. From right to left, push the knobs on the side of the brace, through the square cut-outs in the flanges. Using a hammer, tap the side of the brace firmly so that it secures the brace through the panel flanges. This will hold the panel together while you detach the serrated wedges that are fastened to the brace. At this time the top of the panel flanges and the face of the panels will be flush and you are ready to permanently secure the brace and the panel flanges with the serrated wedges. Push each of the serrated wedges into the four brace slots that are protruding through the side of the panel flanges and tap them home with a hammer until the panels are firmly locked in position.

Move around the pool, attaching the walls together in the same manner as described above. The strings that were used as a guide for excavating the interior of the ledge can now be used as a straight line to guide the alignment of the bottom of the panel walls.

Starting at one corner, carefully line up the first panel and secure to the panel shelf by driving 250mm ( 10" ) long pieces of 12mm dia steel reinforcing rod through the holes provided in the base flange of the panel. Continue working around the pool perimeter until all panels are correctly lined up and fixed in position.

You are now ready to level the walls and make sure that they are vertical and true. Packaged with each brace there is a galvanised steel stake with a series of holes drilled in one side. Push a stake through the cut in the bracket on the side of the rear of the brace and drive into the ground until the top is nearly flush with the top of the bracket. Now, using a spirit level on the poolside face of the panel, adjust until vertical, remove the plastic plug attached to the inside of the frame and push through the hole in the bracket and the corresponding one in the galvanised stake. Check alignment of panel once again before repeating the process all round the pool. When correct, we recommend that the panels are held in their final position with a couple of long nuts and bolts.

## Final Fixing of Pool Walls

The final stage of fixing the walls is to carefully pour concrete all around the pool behind the panels up to the fill line clearly marked, resulting in a 100mm ( 4" ) deep x 300mm (12" ) wide concrete base, permanently anchoring the walls, ready for installation of the pool fittings and backfilling to final level (see Figure J).

## Fitting the Linerlock

Linerlock is supplied in 3M long strips, with specially made corner pieces used for radius cornered pools. It is secured to the top of the pool wall by means of self tapping screws or special pop rivets. The open edge of the linerlock is set flush with the front edge of the pool wall and secured by the screws or rivets at intervals of approximately 250mm ( 10" ). The corner pieces will need to be fixed by five screws or rivets to enable them to accurately follow the contour of the wall.

Figure H

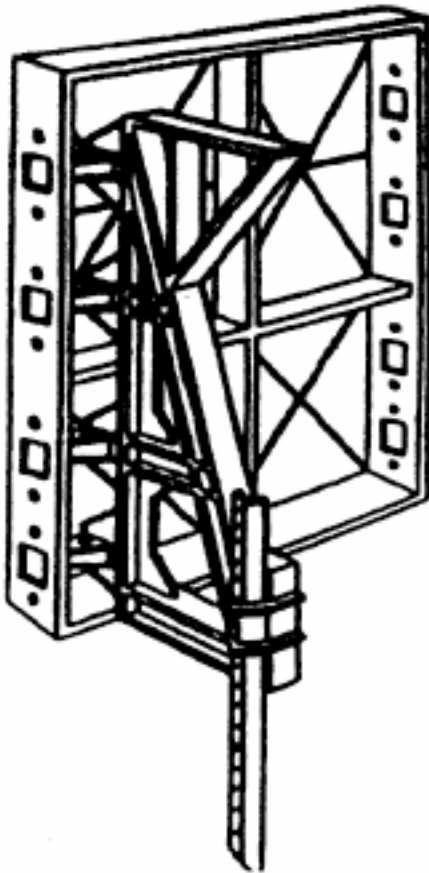
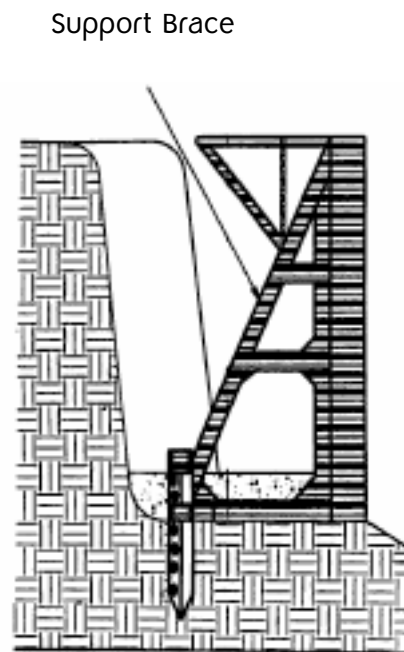
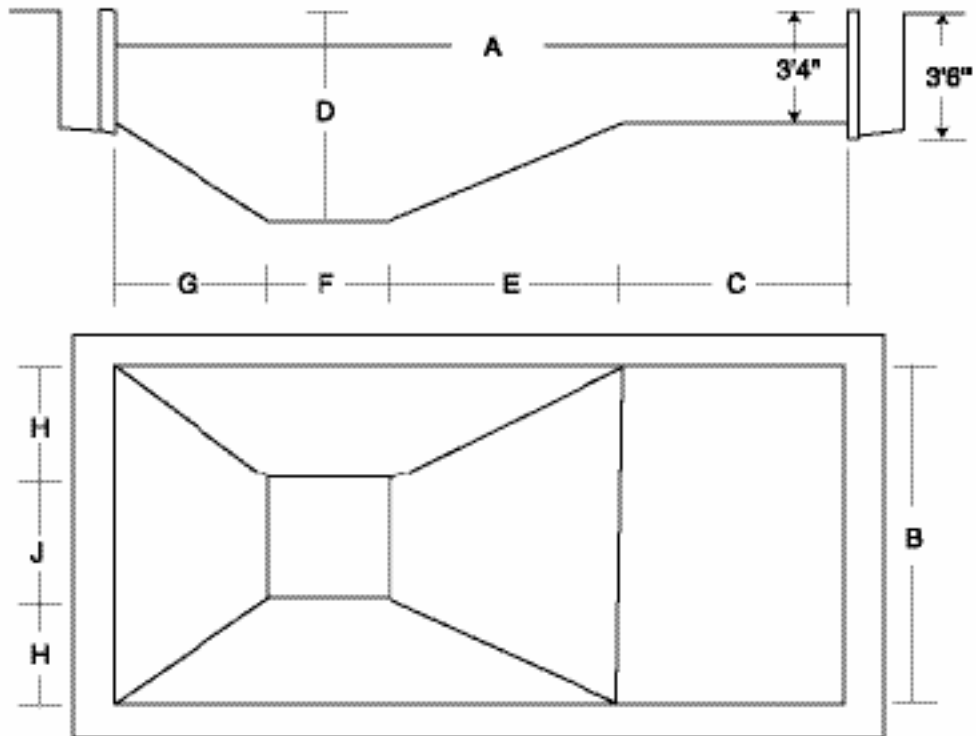


Figure J



# Finished Dimension of Hopper Shape Pool

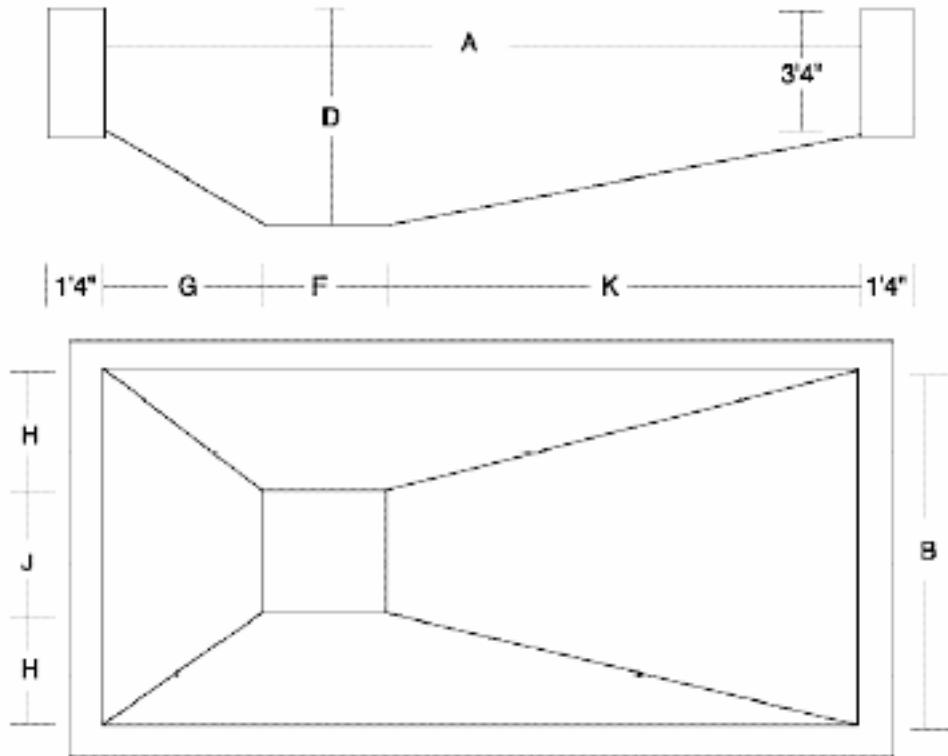
(after completion of screeding)



## FINISHED DIMENSIONS

Pool Size	A	B	C	D	E	F	G	H	J
24' x 12'	24'	12'	8'	5'3"	7'	4'	5'	4'	4'
28' x 14'	28'	14'	10'	6'0"	9'	4'	5'	5'	4'
30' x 14'	30'	14'	10'	6'0"	11'	4'	5'	5'	4'
32' x 18'	32'	18'	10'	6'9"	11'	6'	5'	6'	4'
38' x 18'	38'	18'	12'	7'6"	14'	6'	6'	6'	4'
40' x 20'	40'	20'	12'	7'6"	16'	6'	6'	7'	6'

# Finished Dimension of Wedge Hopper



## FINISHED DIMENSIONS

Pool Size	A	B	D	F	G	H	J	K
24' x 12'	24'	12'	5'3"	4'	5'	4'	4'	15'
28' x 14'	28'	14'	6'0"	4'	5'	5'	4'	19'
30' x 14'	30'	14'	6'0"	4'	5'	5'	4'	21'
32' x 18'	32'	16'	6'9"	6'	5'	6'	4'	21'
38' x 18'	38'	16'	7'8"	6'	6'	6'	4'	28'
40' x 20'	40'	20'	7'8"	6'	6'	7'	6'	28'

## Installation of Main Drain

(See Figure F)

SPATA regulations now specify that a minimum of two low level suction points should be installed in any swimming pool for safety reasons and these instructions reflect that requirement.

Check once again that the depth of the deep end of the floor is correct, allowing for the 50mm ( 2" ) screed which is to be applied after the fitting of the maindrain and low suction as follows:

1. Remove all flanges, gaskets, faceplates and fixing screws, storing in a safe place, with the exception of the protective disposable cover.
2. Use the 1-1/2" threaded plugs and P.T.F.E. tape to seal the bottom outlet of the maindrain
3. Fit a 2" x 1-1/2" Threaded reducing bush and a 1-1/2" socket nipple to the side outlet of the drain and then connect the drain and low suction together, inserting a tee behind the low suction .
4. Set the drain into its final position and concrete in place, once more remembering to allow for the 50mm ( 2" ) floor screed which is to be applied later.
6. Backfill the suction pipework with shingle.

## Screeding the Pool Floor

1. Using the finished screed line marked on the inside bottom of the wall panels mark out the dimensions for the deep end hopper and using a straight edge, string, spirit level and plumb bob, mark out the shape in the floor and peg the corners with the top of the pegs set to the finished floor level. Pegs can now be driven into the corners of the pool at the junction of the wall and the dig. Their height should be set to that of the screed line on the panel. Now string the pegs ready for screeding (Refer to finished dimensions).
2. Use an 8:1 soft sand/cement mix as a screed (Do not use sharp sand in any circumstances). The mix should be damp, not wet and should be free of coarse grit or stones.
3. Using a wooden float apply the screed, first starting at the the top of the deep end wall slope, followed by the two sidewall slopes, and level off with a timber straight edge before finally finishing with a trowel. Then complete the deep end floor before working towards the shallow end up the final slope. Finally, screed the shallow end.
4. As you complete the screeding section by section, remove the pegs and make good any local damage.
5. Do not attempt to walk on the screeded surface for at least 24 hours.

## Liner Preparation

1. Remove masking tape from the pool fittings and carefully clean up the faces, paying particular attention to the screw holes. Any debris left on the fittings or holes could cause the plastic flanges to crack when the unit is screwed up tightly.
2. Thoroughly brush and wipe down the panel walls.
3. Remove any plastic plugs and the protective covers from the main drain.
4. Brush out the pool floor with a soft brush/broom and vacuum up all traces of dust and debris.

## Gaskets

1. Carefully fit the self adhesive gaskets to the return inlet, low suction, vacuum point (if fitted) and underwater light assemblies.
2. Fit the gasket to the face of the main drain and surface skimmer/s with spray adhesive. ( Some gaskets are self adhesive ).

## Fitting Liner Underlay (optional)

In order to provide protection against abrasion between the liner, walls and floor, underlay can be fitted. We recommend foam underlay for the walls and felt underlay for the floor.

- 1 Coat the walls with a screed of thixotropic adhesive using a coarse toothed comb
2. Walk around around the wall of the pool unrolling the foam underlay as you go, pressing it firmly to the wall. Make sure that any joints are carefully butted together and seal with adhesive tape. Trim off any surplus material. Alternatively coat both wall and underlay surfaces with three or four 100mm wide bands of spray adhesive and allow to dry, working on areas of approx 3M2 ( 10ft2 ). Press the underlay smoothly onto the wall.
3. Clean the pool floor once again to make sure that no traces of foam underlay remain. Lay the felt underlay, cutting to shape and butting the joints carefully (no overlapping), finally sealing them with adhesive tape.
4. Always allow at least twelve hours for thixotropic adhesive to dry before fitting liner, unless using spray adhesive which will cure within two hours.

## Liner Installation

1. Make one last check to ensure that the pool is completely free of all dust and debris.
2. Before installing, store the liner in a warm environment for 2/3 days in order to make it as pliable as possible.
3. If possible, choose a warm, sunny day. The liner is manufactured to be slightly smaller than the size of the pool to allow it to be stretched during installation as the pool fills, thus helping to achieve a crease and wrinkle free perfect fit.
4. Ensure that every one who will be helping with the liner installation only enters the pool bare-foot. ALL PRECAUTIONS MUST BE TAKEN TO AVOID PUNCTURING THE LINER.
5. Remove the liner from its box, place it on the shallow end floor and position as indicated by the diagram on the outer box .
6. A label attached to the liner will indicate the position of the deep end. Make sure you have placed this label facing the deep end.
7. Unroll the liner across the shallow end, then carefully unfold down the length of the pool. The liner has a special beading welded to the top edge which clips into the aperture of the linerlock (already fixed to the top of the pool wall). Never drag the liner on pool floor, always lift and carry.
8. Make sure the corners of the liner are in the correct position, lining up properly with the pool corners at floor level.
9. Starting at one of the shallow end corners, push the liner into the corner with your foot and, keeping the pressure on, lift the liner wall and feed the beading at the top into the linerlock until it is locked into position.
10. Work around the entire pool in the same manner, locking the beading into the track as you go. Make sure the four corners are located correctly, sliding the liner along to make sure this is possible. If linerlock is tight in the corners, lock centre of the walls into the linerlock and work stretching the liner towards the corners until sufficient slack is obtained.
11. Make sure the deep end area is positioned as accurately as possible to the pool floor profile.

## Vacuuming the Liner into Position

The most effective way of positioning the liner is by drawing out the air trapped from behind it and this can best be achieved by using an industrial vacuum cleaner, which can be obtained from the local plant hire shop. It will successfully draw the liner tightly back to the walls ensuring an exact fit. In order to get the best result it is necessary to take the following precautions:

1. Using masking tape, seal the open ends of the pipes connected to the skimmer(s), inlets, main drains and vac point.
2. Seal the joint between the rear edge of the linerlock and the top of the wall with a thin bead of silicon sealant to reduce the possibility of air being drawn in between the linerlock and wall.
3. Approximately 450mm ( 18" ) from one of the deep end corners lift a small length of the liner beading out of the linerlock track and very carefully push the vacuum cleaner



hose down behind the liner. Ensure that the hose does not go behind the underlay if it is fitted. Push the hose down to within 100mm ( 4" ) of the base of the wall. Finally seal the gap around the top of the hose with tape or wet towels and turn the vacuum cleaner on.

4. The liner will be sucked back to the walls and floor. Check the corners for a good fit at this point. Also check that the floor seams align with the base of the wall.

5. There may be some tension at the base of the walls if the liner has not been sucked back fully, but this will correct itself when the pool is filled, provided that the tension is equal all round.

6. If you have vertical creases from the floor seam to the top of the wall, turn off the vacuum and slide the liner along the linerlock to remove the creases.

7. Switch on the vacuum cleaner and check that the liner is fitting properly. When you are satisfied, fill the pool to a depth of 150mm ( 6" ) over the deep end leaving the vacuum running.

## Cutting out the Main Drain

1. Take a Philips screwdriver, Stanley knife and bradawl down into the bottom of the pool. Also take the main drain flange plate, grille, gasket and screws with you.

2. Puncture each of the screw holes in the main drain face plate with a bradawl. The outline of the plate will be easily visible through the liner. Fit the second gasket to the underside of the flange plate and fit them to the main drain body, carefully aligning the screw holes.

4. Fit the screws carefully, taking care to work on diagonally opposite screws in turn. This will allow the plate to be evenly screwed down.

5. When secure, carefully cut out the portion of liner held in the centre of the flange plate.

6. Fit the grille with the screws provided.

7. Continue to fill the pool. Switch off the vacuum cleaner when the pool water level reaches a level 150mm ( 6" ) above the shallow end floor.

8. Remove the vacuum cleaner hose from behind the liner and refit the liner beading back into the linerlock.

## Cutting in the Pool Fittings

From now on it is important to synchronise the sequence of filling the pool with water, backfilling with pea shingle and cutting out the pool fittings. As you fill with water in stages, keep backfilling to the corresponding height. Once you reach a point immediately below the next pool fitting follow the instructions as indicated below, fitting by fitting, then continue to fill and backfill until the next fitting level is reached. The pipework from each fitting should be laid on and covered by a 50mm ( 2" ) minimum bed of sand to protect them from damage.

DO NOT remove the liner material from the centre of the fittings until after the flanges have been fully fitted.

## Cutting out the Underwater Light Fitting (general)

1. Locate four diagonally opposite holes in the flange behind the liner and pierce them with a bradawl.
2. Align the flange plate and fit the first four screws. Now fit the remaining screws making sure that you work in diagonally opposite pairs to avoid distorting the faceplate. Do not over-tighten.
3. When faceplate is securely fixed carefully cut out the inner circle of liner material.
4. Fit the internal lamp unit into the niche by passing the cable through the conduit up to the deck box, making sure that you leave any extra cable wound round the lamp unit to facilitate lifting the unit above the water line to change the bulb. DO NOT SHORTEN THE CABLE IN ANY WAY
5. Secure the lamp unit in the outer niche as per manufacturers instructions and seal the cable exit by tightening the compression gland nut at the rear of the niche.

## Cutting out the Return Inlet & Low Suction Fittings

1. Locate the screw holes in the faceplate behind the liner and pierce them with a bradawl.
2. Align the flange plate and fit the screws, making sure that you work in diagonally opposite pairs to evenly secure the fitting.
4. When secure, carefully cut out the inner circle of liner material.
5. Screw the eyeball housing or grille assembly into position.

## Cutting out the Vacuum Point (optional)

1. Locate the screw holes in the faceplate behind the liner and pierce them with a bradawl. Align the flange plate and tighten the screws. Make sure that you work in diagonally opposite pairs to evenly secure the fitting. When secure, carefully cut out the inner circle of liner material. Screw in threaded plug.

## Cutting out the Skimmer Weir Fitting

1. Locate the screw holes in the faceplate behind the liner and pierce them with a bradawl.
2. Align the flange plate and tighten the screws, working in opposite pairs from top and bottom centers outwards to evenly secure the flange.
3. When secure, carefully cut out the inner rectangle of liner.
4. Snap the cover plate in position over the flange plate.
5. Finish filling the pool until the water level is up to half way up the skimmer mouth plus 2". This is the correct normal water level plus an allowance for initial startup procedures. You should now have a pool full of water, with all fittings fully operational, which is backfilled ready for the installation of ring beam, copings and paving.

Note: It is highly likely that some tension will be noticeable at the corners of the pool. This is perfectly normal and nothing to be concerned about.

## Installing a Ring Beam

We strongly recommend that a reinforced concrete ring beam be constructed around the top of the pool wall to avoid the possibility of movement in winter conditions caused by frozen surface water expansion. This ring beam should be 150mm ( 6" ) square, using a mix of 1:8 cement to 3/4" to dust all in aggregate, with two rows of 12mm steel reinforcing rod. The concrete and rod should form one continuous unbroken band running around the top of the pool.

## Ladder & Slide Fixings

Should you be installing a ladder, a or a slide requiring a concrete base this is the time for these to be cast and keyed to the ring beam.

IMPORTANT NOTE: Do not install a diving board until you have consulted with your supplier regarding the regulations.

## Copings

The copings supplied as standard are 225mm ( 9" ) wide and have a bullnose front edge. The straight lengths are 610mm ( 24" ) long and the corners 355mm x 355mm (14" x 14") with a radius of 150mm (6") Additional copings are used on a Roman End or rectangular steps. 12" copings are also available.

IMPORTANT. GREAT CARE MUST BE TAKEN TO ENSURE THAT NO DUST, DEBRIS OR MORTAR IS ALLOWED TO FALL INTO THE POOL.

1. Remove all dust and dirt from the top of the pool panel walls
2. Apply a cement slurry to the top of the walls to act as a bonding agent This slurry should be of a thick creamy consistency and painted on both the copings and the panel top prior to laying
3. Spread a 6:1 sand and cement fillet on the top of the pool walls, spreading it evenly and level. The finished layer should protrude marginally above the linerlock track.
4. Lay the four corner copings first. Each coping should overlap the linerlock by 9.5mm (3/8") to conceal it.
5. Stretch a taut string between each corner to ensure that the straight copings are all in line along the sides Always work from the corners to the middle when laying the copings.
6. Take care to make sure the copings are all level. Some units may need more or less mortar due to the fact that they are not all uniform in depth when manufactured. Any copings that need cutting should be in the middle of each side or end. This will look more pleasing to the eye.
7. If any copings need cutting use a carborundum disc cutter, this again, can be hired. Make the cuts away from the pool.
8. Leave 9.5mm (3/8") between copings for pointing. The mixture for pointing is one part silver sand to one part white cement, mixed to a putty consistency.
9. Trowel the mixture into the joints and remove any extra immediately with a damp sponge. Do not scrape any surplus off as this may damage the copings.

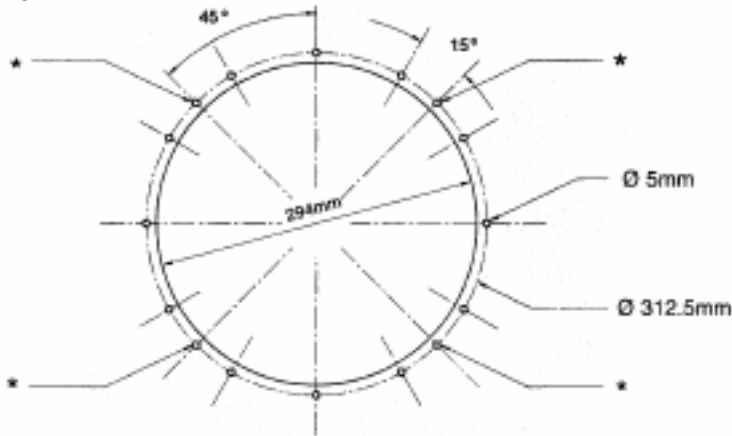
# Paving

The paving around the pool should be laid with a slight fall away from the rear edge of the perimeter coping to ensure that the surface water and dirt or debris runs away from the pool.

1. Consider the installation of a slide and any other deck furniture at this stage and also make provision for the electrical services to the underwater light deck box.
2. If the area is fairly level and well consolidated use pea shingle or stone chippings on which to lay the paving slabs.
3. A mixture of 1:5 semi dry cement and sand bedding mortar should be used. to bed and level the slabs.
4. Leave 12.5mm (1/2") between slabs for pointing, which should be done using a dry mortar mix well rammed in. The pointing should be slightly recessed to improve drainage as well as the appearance.
5. Cut the slabs to fit the skimmer frame and lid assembly, stainless steel steps and underwater light deck box where required.
6. Sponge off surplus cement from pointing as you go, to avoid staining of the paving slabs.
7. If the pool surround area is of made up soil, this may cause the paving to settle after a while. In these circumstances it is advisable to lay the slabs on sand so that they may be levelled again at a later date, then cemented finally into place.
8. Choose the paving slabs carefully. **PAVED AREAS ARE SLIPPERY AND DANGEROUS WHEN WET.** Always try to use textured slabs to minimise the danger.

# Panel Pool Underwater Light Installation

Figure 1



Pass niche (SPC456S) into panel wall aperture from pool side and line up 16 holes in niche 'lip' with the 16 holes in panel wall. NB ensure niche is the correct way up - 'top' is indicated on the rear of the niche. Pass back ring (SPC459) over the rear of the niche and bring up to the back of the wall forming a 'sandwich', i.e. niche lip-panel wall-back ring. Secure all parts together using the 4 no. 3/4" self-tapping screws provided (SPC513). NB ensure that these screws are fixed through the holes marked '\*' on the drawing #1.

Cut aperture in panel wall as per diagram (294mm Dia.). The front lip of the niche can be used as a template for the 16 no. 5mm holes (for holding screws) after the aperture has been cut out. NB the approximate distance between the centre of the lamp and the final water level should be 750mm. \* = Securing holes for no.4 3/4" screws.

Figure 2

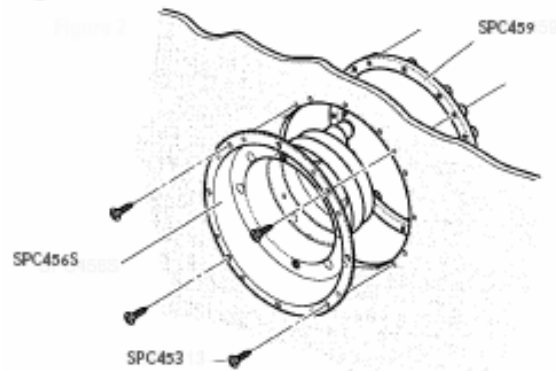
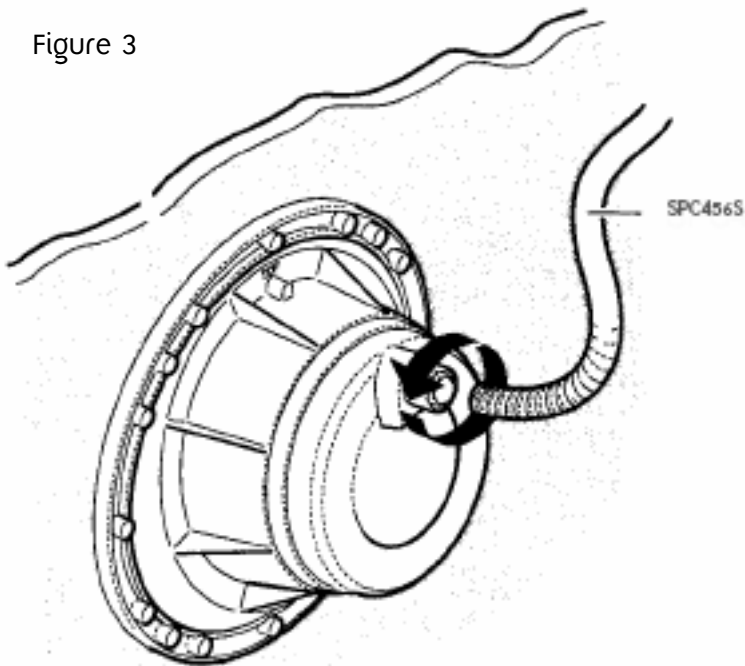
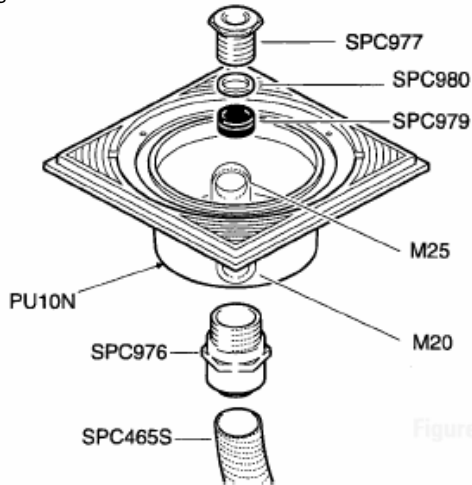


Figure 3



Thread the flexible conduit (SPC465C) into the opening in the back of the niche (using silicone or mastic to seal the thread), prior to back filling. NB 3/4 BSP threaded niches and rigid PVC conduits are available as an alternative to flexible type.

Figure 4



Screw the "Micallef" gland body (SPC976) up into the base of the deck box (PU10N) using silicone or mastic to seal the thread. Thread the remaining end of the flexible conduit (SPC465S) into the gland. Place the black rubber bush (SPC979) and the resin washer (SPC980) into the recess of the base of the deck box and screw the "Micallef" gland nut (SPC977) into the washer. Select which side is required for the connection of the transformer cable and seal the unwanted opening using one of the red threaded plugs provided. The deck box is now ready to be wired.

Feed the underwater light cable through the opening at the rear of the niche until it is visible at the deck box. Tighten the "Micallef" gland nut (SPC977) onto the outer sheath of the cable "hand-tight" should be sufficient. Prepare the transformer connections by attaching the live and neutral cable cores to the terminal block (SPC516N) provided. For connection to the Certikin transformer, please refer to the green booklet inside the Certikin transformer pack.

Figure 5

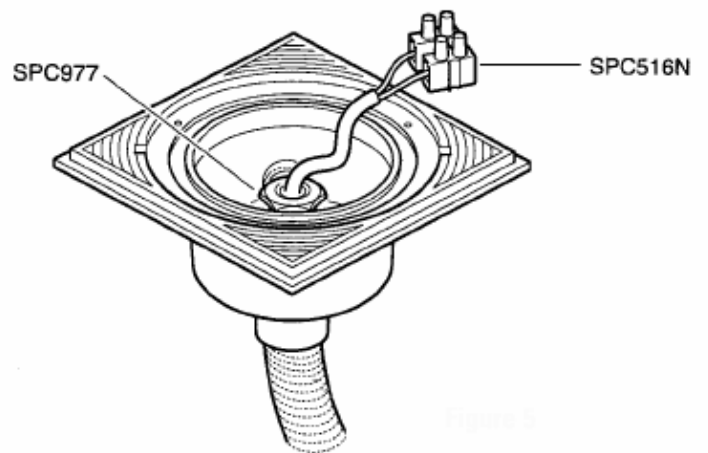
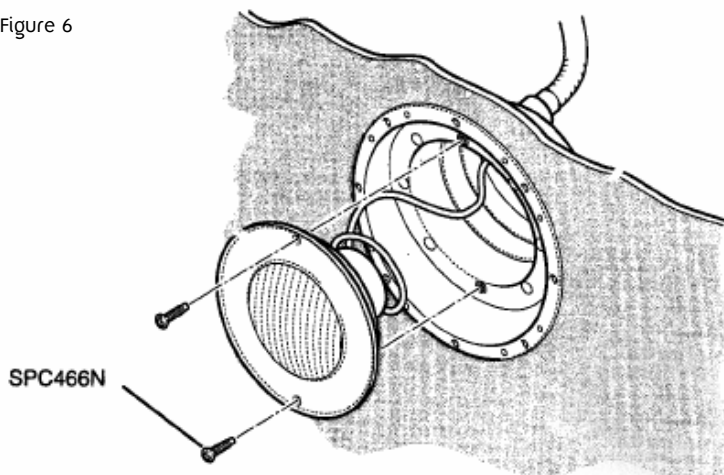


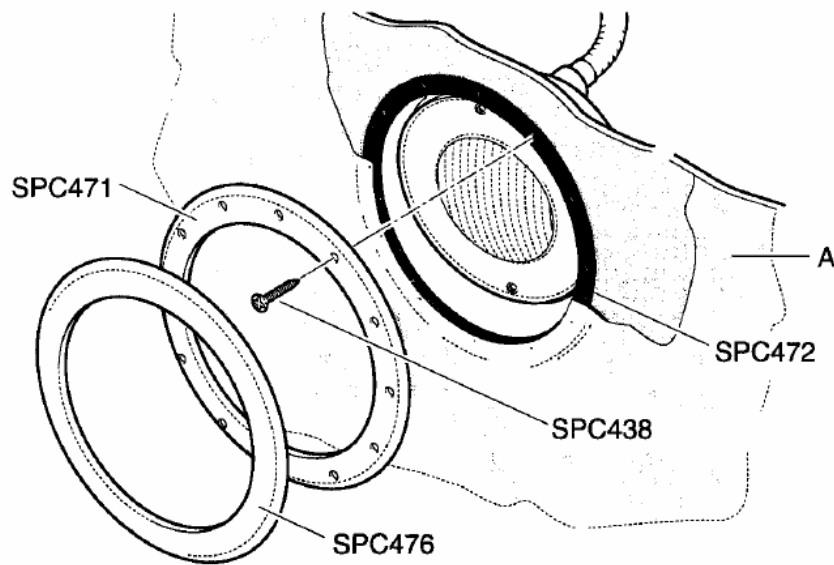
Figure 6



Pull the cable back through the hole in the niche until resistance is felt from the deck box connection. Tighten the gland at the back of the niche onto the outer sheath of the cable. "Hand-tight" should be sufficient. Coil the remaining cable around the white lamp housing and place the light unit into place using the 2 no. M6 screws provided. (SPC466N)

Apply gasket (SPC472) to front lip of the niche. **IMPORTANT** Do not for liner clamp flange front ring until the water level has reached the level of the niche. After liner is in place, feel through liner for holes in gasket/niche lip and offer front ring (SPC471) to niche ensuring all 12 holes are aligned. Using self-tapping screw provided, (SPC438) secure front ring to niche through pool liner (A) and gasket. Carefully cut liner material from centre of niche aperture. Finish using clip-on cover plate (finishing facia-SPC476)

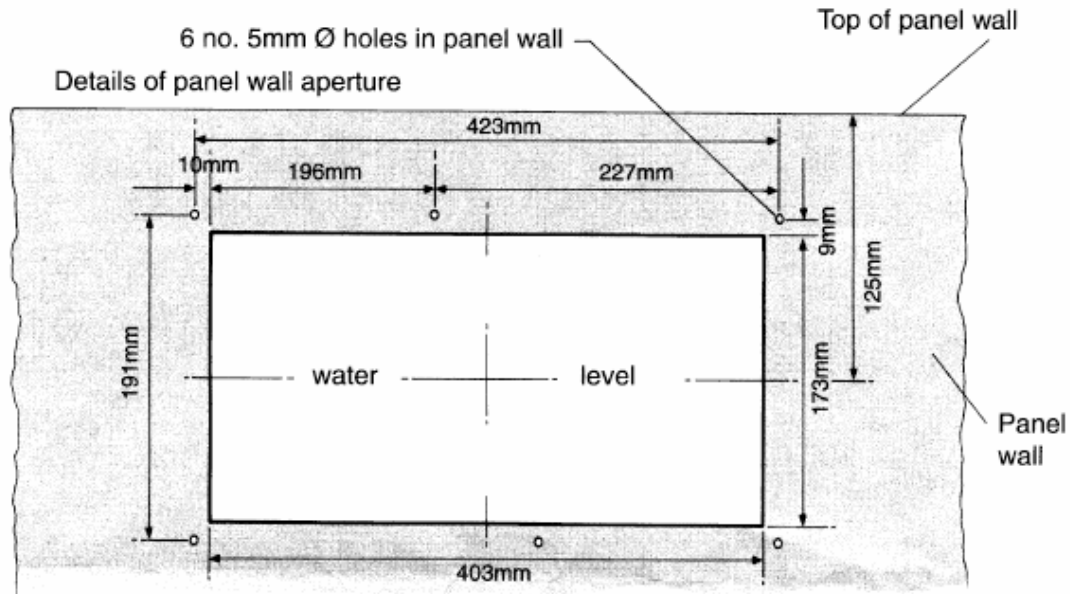
Figure 7





# Installation of Certikin Surface Skimmer (HD100SN/HD101SL)

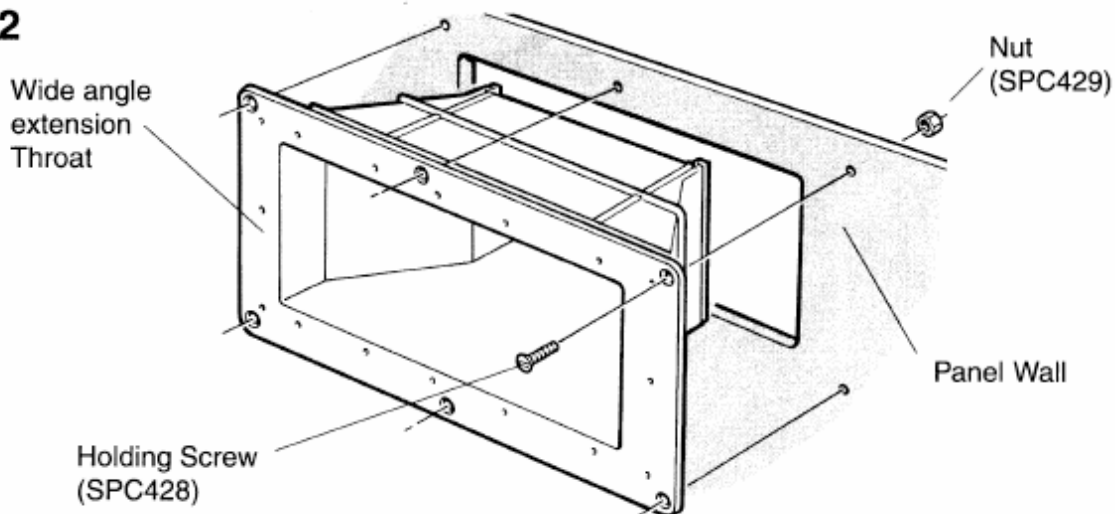
1



Cut aperture in panel wall as per diagram. The front face of the wide angle throat can be used as a template for the 6 no. 5mm holes (for holding screws) after the aperture has been cut out.

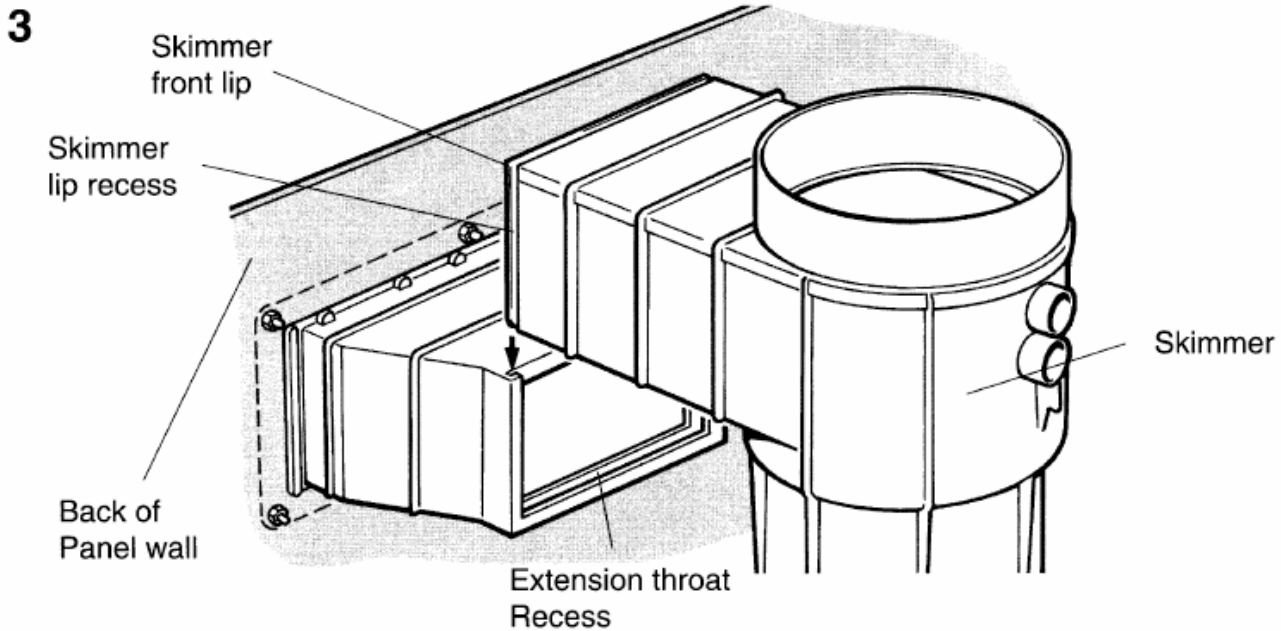
Cut aperture in panel wall as per diagram. The front face of the wide angle throat can be used as a template for the 5no. 5mm holes (for holding screws) after the aperture has been cut out.

2

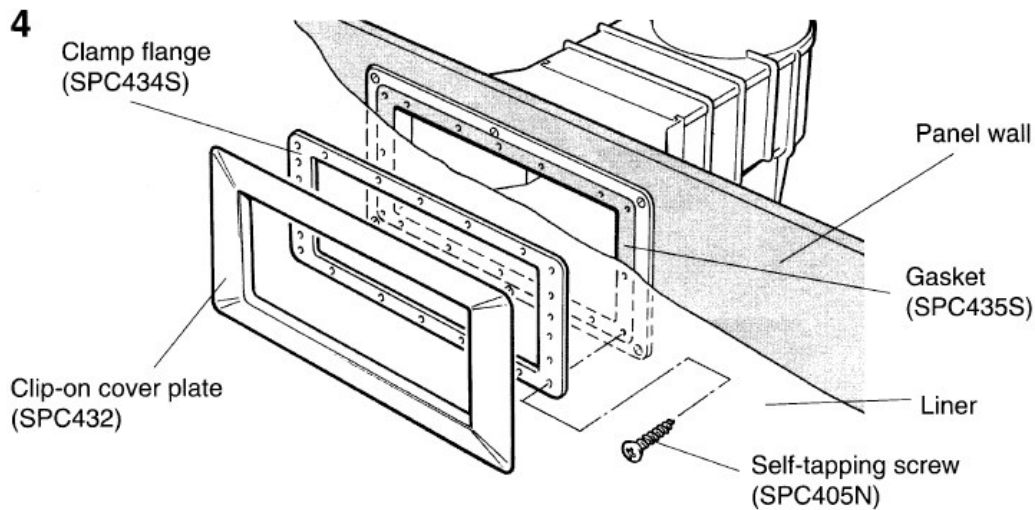


Pass wide angle extension throat into panel wall aperture from pool side and line up 6 holes in throat face with the 6 holes in the panel wall.

N.B. Ensure throat is the correct way up - 'top' is indicated on the throat. Attach the throat firmly so the panel using the 6 holding screws and nuts provided.



Using a brush, apply ABS Cement to the front lip and recess of the Certikin skimmer and to the recess in the back face plate of the extension throat. Slot the skimmer lip down into the slot in the throat until firm. (The two holes in the base of the throat recess allow excess cement to squeeze out, ensuring an all-round fit). Using the brush, smooth off any other excess cement and re-coat the joins of the skimmer throat—inside and out, filling any voids to ensure a watertight seal.



Apply gasket to front face plate of extension throat.

**IMPORTANT** - DO NOT fit liner clamp flange until water level has reached the level of the throat.

After liner is in place, feel through liner for holes in gasket/throat face and offer clamp flange to throat ensuring all 16 holes are aligned. Using self-tapping screws provided, secure clamp flange to throat through pool liner and gasket. Carefully cut liner material from center of throat aperture. Finish using clip-on cover plate.

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