

GUIDELINES FOR INSTALLING VINYL LINERS

AN OUNCE OF PREVENTION

With the growing market for replacement vinyl liners, pool builders can save valuable time and money by learning from their colleagues' mistakes. The following are some common mistakes made when measuring and installing vinyl liners.

MEASURING MISTAKES

- Not using the manufacturer's order form
- Mismeasuring on slopes
- Assuming standard pool specifications, including 42 inches for a finished wall
- Not subtracting coping from the pool depth
- Not checking final numbers against length and width
- Not measuring the diagonal to accommodate out of square pools
- Not using the same units of measurements for all dimensions
- Pre-adjusting measurements (manufacturers do this for you)
- Using the words "right" or "left" without stating from where
- Mismeasuring or leaving off corner radius
- Not adding stair risers to sidewall
- Mismeasuring break location on lazy "L" pools
- Forgetting that loops are required on steps for rod pockets

INSTALLATION MISTAKES

- Not enough suction or suction in the wrong place
- Not lining up bottom on safety ledge before filling
- Not verifying perfect fit before cutting fittings
- Failure to locate liner for kidney or "L" pools
- Cutting in stairs before shallow end is full
- Turning off vacuum too soon
- Taping problems (can damage liner)
- Dragging liner on deck while positioning
- Poor preparation of wall or floor
- Poor non-bacterial preparation of bottom

THE TOP 10 MOST COMMONLY MADE ERRORS WHEN MEASURING POOLS FOR LINERS

- 1) Not using the manufacturers measuring sheets. Manufacturers have invested heavily in hardware and software to improve the accuracy and throughput of their design and cutting departments, and their measuring sheets have been set up to work with their software. Not using the manufacturer's measuring sheets can and will create unnecessary errors and delays in processing your orders. ALWAYS completely fill in the measuring sheets.
- 2) Assuming standard specs for any part of a pool (i.e.: Wall Heights, Corners, Depths, Bead Types, etc.) when most companies have multiple standards, and the manufacturer will not know the one you are dealing with. Remember that there are over 10 corner sizes, 3 corner types and 10 wall heights that are considered standard by someone.
- 3) Incorrectly measuring Wall Heights and Depths. All depths must be based on the location of the bead receptor. Wall heights should be from the bead receptor to where the pool floor meets the pool wall. Deeper depths should be taken in several places, the most important being the corners of the pool pad based on the slopes you have provided.
- 4) Not consistently using the same measuring units. Use Imperial Units (Feet & Inches preferred not inches alone) or Metric Units. This makes it easier to check additions of profiles ((shallow end + front slope + pad + back slope must = length of pool), (and left side slope + pad + right side slope must = width)).
- 5) Not providing diagonals to confirm the pool is square. A pool can be far enough out of square, but not visible to the human eye, to cause fitting problems. This mistake occurs most often with Rectangles, Grecians, Lazy "L"s, and Square "L"s. Always check diagonals and show them on measuring sheets.
- 6) Adjusting measurements. Do not adjust measurements taken of the pool. Manufacturers do that for you when they create the cutting specs for your liner.
- 7) Mismeasuring or not measuring break locations. Break locations on Lazy-Ls, Square-Ls, Kidneys, etc... are used by the manufacturer to determine where to start or stop adding in material for changes in depths of your pool.
- 8) Stating the hand of a pool (i.e., Right or Left) without taking into consideration the manufacturers requirements. Do not confuse Reverse End Pools with reverse pools. Reverse is used by some companies to indicate opposite hand to their standard plans. Reverse End is used to indicate that the deep end of a pool is being switched with the shallow end on pools that have differences between the two. Always give the finished hand after the ends are reversed - a sketch is always helpful.
- 9) Not providing a separately measured perimeter on shaped pools. Perimeters are used for checking CAD plots for Kidneys, Figure-8s, Cloverleaves, etc... It is also used to spot check finished liners.
- 10) Not measuring vinyl lined stairs fully. All the risers should add to the wall height and all treads should add to the stair depth. Do not forget to measure the length of the stair as well (they are not all 6' long). Other information needed on stairs is the corner detail on the top tread, whether or not there is a set back from the pool wall and it's detail, and if you require loops to hold the stair in place.

Tools Required for POOL MEASURING.

- i. 2 – 100ft fiberglass tape measures (preferable different colors)
- ii. 2- stakes (12” nails, pieces of ½ re-bar or similar)
- iii. Telescopic pole with measuring markings (used to measure the slopes and depths)
- iv. Plumb bob and String
- v. Latham Splash Canada Inc. measuring sheets and pen
- vi. Utility knife
- vii. Chalk
- viii. Level

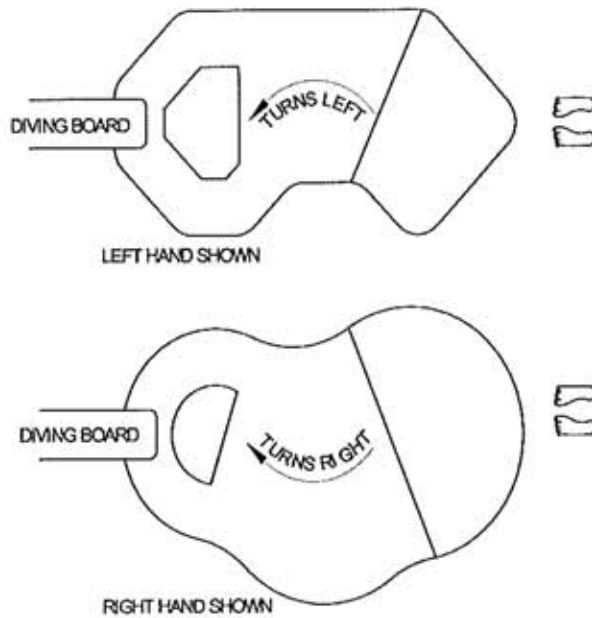
Determining the hand, RIGHT and LEFT.

With certain pool shapes, you must indicate the “*Hand*”. The hand is determined by the way the pool curves, for example if the pool curves to the right then the pool is a right hand.

Conversely, if the pool turns to the left the pool is a left hand.

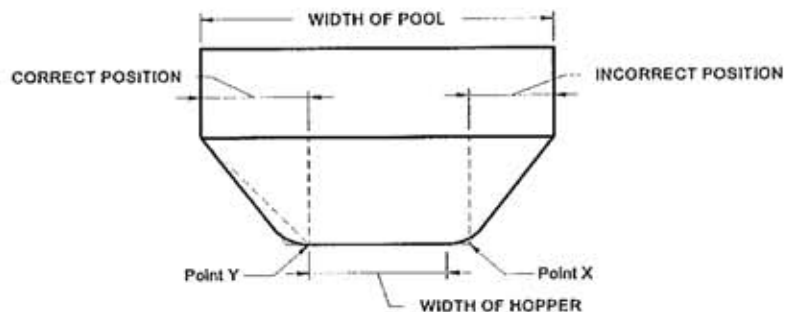
Latham determines the hand of a pool as if you were standing in the shallow end looking towards the deep end. It is very important to state the hand in accordance to the Manufactures measuring sheets, since not all pool manufactures conform to a standard.

DETERMINE HAND FROM SHALLOW END



Measuring Slopes when the hopper is Bowled.

When measuring a pool with a rounded or bowled hopper (pad) the slope measurement must be taken at the point on the pad where it is truly flat. If the slope is taken at the imaginary intersection (shown as point X) it will increase the possibility of “puckers” when the liner is installed. The slope should therefore be measured at point Y as shown.



A-B PLOT TRIANGULATION.

An A-B plot is a method using triangulation to define complex pool shape (for e.g. Kidneys, Humpback Kidneys, and other freeform shapes). This should not be used for standard pool shapes such as Rectangles, Lazy L's and Octagons, for these shapes use the standard measuring pages provided in the Latham Splash Canada Inc. measuring booklet.

STEP 1, THE SET-UP PROCESS

Position two stakes (12" long nails or a piece of 1/2" steel bar or similar) at least 10ft apart as illustrated in figure 1a. When positioning the stakes be certain that they are parallel to the centerline or the longest length of pool depending on the shape and a minimum distance of 3ft away from the edge of the pool. The stake placement shown on the side of the reverse radius is the ideal position to measure a pool of this nature. Sometimes due to landscaping, this is not possible and a different stake position has to be used as shown in the back radius of the pool in figure 1a.

If this is still not possible, the stakes can be moved to almost any position around the pool with some basic rules to follow. Figure 1b illustrates several positions for stake placements, two are okay and the other two are not. The broken lines (-----) represent the stakes (direction A towards B) if they were extended in either directions.

Position 1 and 2 must be avoided; when the lines are extended they intersect with the pool perimeter as shown in the illustration and this normally causes numerous problems. The stakes must also never be placed where it lies across any part of the pool.

Once the stake positions have been established measure the distance between them (minimum 10') and record this measurement in the appropriate box on the measuring sheet.

TIP:

- i. *Make sure the when measuring the tapes are held at the same level as the deck of the pool.*

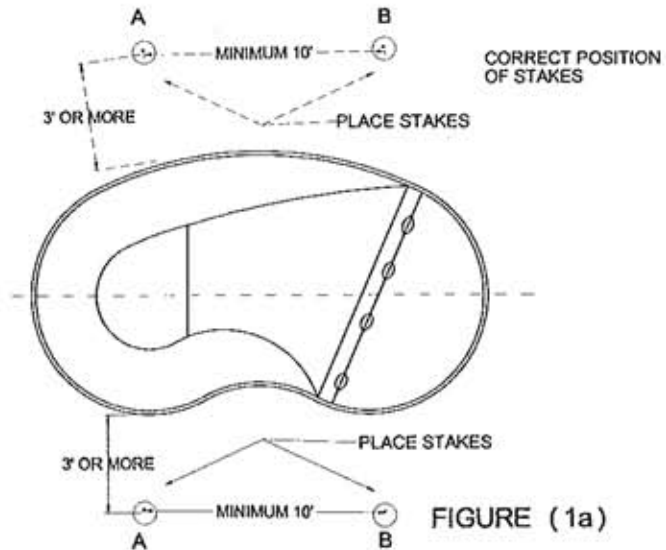


FIGURE (1a)

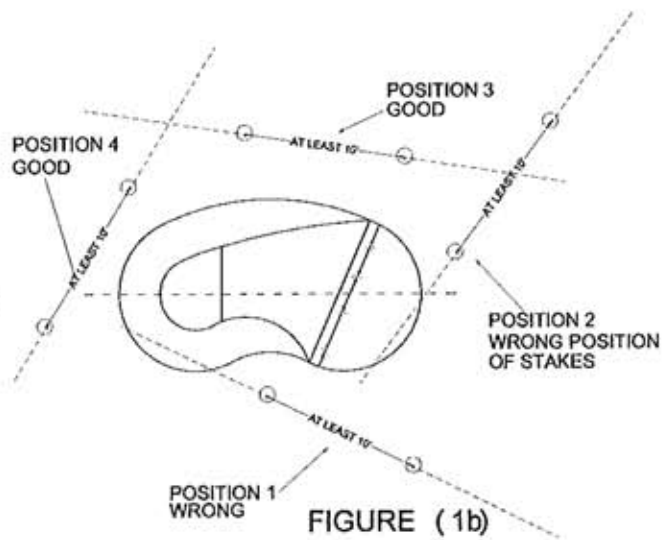
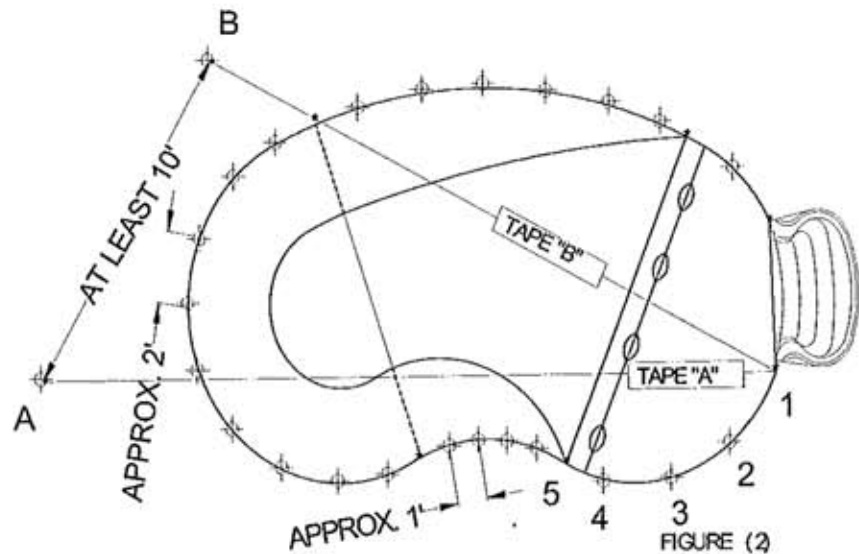


FIGURE (1b)

STEP 2, TAKING THE POINTS

Once the stakes are placed, attach the tapes, one to each of the stakes. At this point choose which stake is A and which is B as shown on the *Manufacturers measuring sheet*. Note the color of the tape that is attached to each of stake so that they are not changed during the measuring process. It is Very important to specify where the stakes are placed if the position is different from the position shown on the measuring sheet.



A consistent method of starting is normally from the edge of a step or a defined point such as the break-off. When accounting for steps in these pools only the start and end is needed, because it is almost impossible to take accurate measurements across the face of the step. It is very important to note on the measuring sheet if the step is straight or curved and the manufacturer if possible.

With the ends of the tapes fixed to the stakes, stretch the both tapes to the edge of the step (this becomes point "1" on the measuring page). Taking both measurements at the same time ensures accuracy. Record the measurement for "A" length and for "B" length making sure they correspond to the "A" and "B" on your measuring sheet. Be careful not to switch the tapes, if this occurs, the measurements provided will not give a proper result and there is no way of telling if this happened. The pool must be measured again until an accurate result is obtained.

There are several things to remember when measuring to a point on the pool. Firstly measure as accurately as possible ($\frac{1}{4}$ " is fine) and do not try to adjust numbers or they become inaccurate. **To make the job easier** (less measurements to record) when moving to the next point (2) which is only approximately 2 feet (does not have to be measured and marked, this is time consuming) away from the first point make the "A" measurement an equal foot or inch. For example if I slide the tape along approx. 2 feet and the reading was (32' - 2 $\frac{1}{2}$ "), move tape back or forward along the panel until the measurement became (32' or 32' - 2") respectively. Then take the B measurement to the $\frac{1}{4}$ " accuracy (e.g. 34' - 5 $\frac{3}{4}$ "). If this is done throughout the entire triangulation process with all the A measurements as an even foot or inch and all the fractions taken on the B measurements one can notice if the tapes were switched during the measuring process.

Continue moving along the perimeter of the pool taking the points approximately 2 feet apart in the large radius sections and approximately 1 foot apart in the smaller radius sections. This increases the accuracy representing the reverse and very small radius corners, which is very important in the design stage.

Another mistake to avoid when using this triangulation method is not measuring to the correct point (on the pool wall). In some pools the coping (or other obstructions) over hang the steel wall panel, which can vary in distance. For this reason, one must be careful to average where the pool wall is in relation to coping (or obstructions) as illustrated in figure 4.

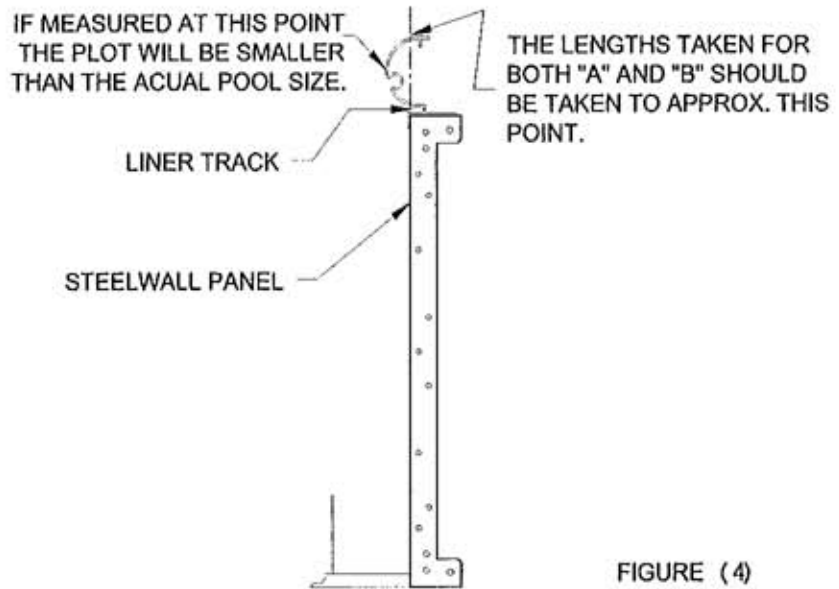


FIGURE (4)

STEP 3, DEFINING THE PAD AND BREAK.

The Break-off and Pad must be defined when the pool is measured. The Break-off can be easily measured because of the defined transition line but the pad can be sometimes difficult to measure. To measure the pad of a pool an imaginary line has to be taken from one side of the pool through the back of the pad to the opposite side as shown in figure 5. This measurement should be taken at the pool wall and not at the floor of the pool. It is almost impossible to

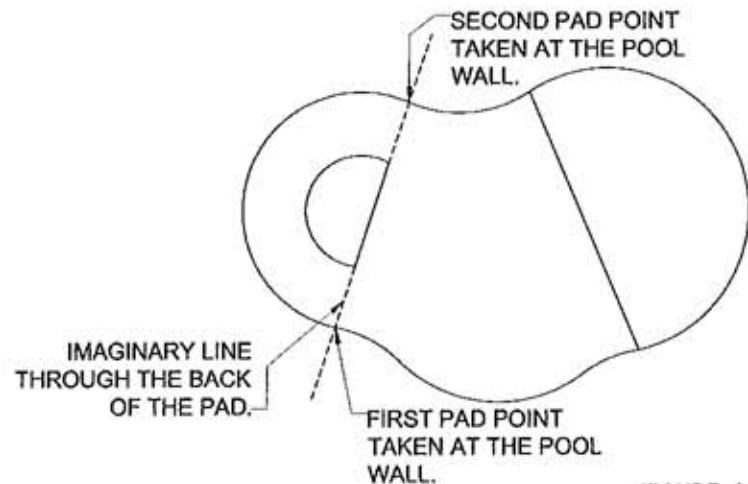


FIGURE (5)

take the measurement of the pad on the floor of the pool because all measurements must be taken level to the deck and not sloping into the pool. If the pad cannot be easily distinguished, fill the pool with six inches of water to form a pad at the bottom of the pool then use this water line to determine the pad measurements. Record these measurements in the boxes provided on the measuring sheet.

STEP 4, PERIMETER

After the Pool, Pad and Break-off points are measured and recorded the perimeter must also be measured. This measurement is *Mandatory* on all *Shaped pools* and the liner order cannot be processed if missing. Perimeter is important in both the design and production of any pool liner when measured with the triangulation method. The perimeter measurement supplied is used to verify the perimeter determined by the plot.

To measure the pool perimeter use a 100ft fiberglass tape. Start at a defined point (Step, panel or Break-off) sliding your hand along just below the bead receptor all the way around the pool wall. Avoid the use of a walking wheel. Although it seems easier it has proven to be very inaccurate when used to measure the pool perimeter. If the wrong measurement is provided you may have to double check the reading causing the liner to be delayed.

WHAT TO DO IF THE LINER DOES NOT FIT.

In the event the liner does not fit, Do not fill the pool with water or cut in any fittings. It is very important to keep the liner *Clean and Dry* in the event the liner needs to be altered. (If the liner needs to be returned, it must be properly folded and placed in its original carton). Check the liner carton to ensure the correct liner was shipped for that pool. The liner serial tag (located at the vertical wall seam) should match up with the serial number on the carton. The serial number is also printed on the panel label, located on the underside of the pool liner.

On some rare occasions it may be possible to have installed the liner incorrectly (deep end in the shallow end, shallow end in the deep end.) To verify this, check the underside of the liner for the panel labels. "A" will always be the first shallow end panel followed by panels "B", "C" etc. If the liner was installed correctly and is still not fitting properly, call your Customer Service Representative.

Tips: Ensure that you have good suction (we recommend a professional air machine or at least two industrial ShopVacs). These air machines must be placed in the right location to provide adequate suction (at the shallow end break off). To create good suction, tape all openings. For example: skimmers, returns, panel joints & where the liner track meets the pool wall (tape complete perimeter). The liner should be wrinkle free before filling the pool, do not assume the water pressure will remove all wrinkles. Some wrinkles may be worked out as the pool is filling. Do not "Kick" the liner into place, scuffing or punctures may occur and these are not covered under warranty. In some instances, shifting the liner in either direction by only a few inches can make all the difference.

NEVER WEAR SHOES INSIDE THE POOL LINER DURING INSTALLATION.