STEP ONE: Complete an onsite evaluation.

An onsite evaluation will allow the Dealer to recognize and consider all costs involved with the project, prepare, educate and manage the expectations of the homeowner as well as alleviate surprises. When completing an onsite evaluation, the following items must be taken into consideration:

1) **Review the Property’s Plot Plan/Plat Survey.** Make sure that where the pool is going to be located follows all state and local building codes. Pay close attention to property lines, setbacks, and/or drainage and utility easements.

2) **HOA.** Review and adhere to any necessary Homeowners Associations guidelines.

3) **Establish Access.** Determine where the construction equipment will gain access the backyard and use throughout the construction process. Will you need to obtain an access waiver?

4) **Pool Delivery.** Determine how best to get the pool into the backyard and what equipment it will take to accomplish it. Consider where unloading equipment will have to be positioned to remove the pool from the truck and into the hole. It is ideal to deliver the pool straight from the trailer to the excavated hole.

5) **Equipment Location.** Discuss with the homeowner an ideal equipment location that allows the equipment to operate efficiently and inconspicuously while still easily accessible. Ensure that the location meets all applicable building codes and Homeowners Association requirements. Make sure the equipment location is not in your access.

6) **Electrical.** Check the electric panel to ensure enough openings are available and consider the electrical run from the panel to the equipment location to confirm that it makes sense. Always have a licensed electrical contractor perform electrical work.

7) **Before The Dig.** It is a good idea to have all underground utilities marked prior to starting the project. Note any items that may not be marked, such as private septic systems, internet and phone lines, irrigation systems, downspouts, dog fences etc... as these may have to be dealt with during the construction.

8) **Aesthetics.** The overall backyard landscape should be taken into consideration when creating the pool and patio design including exposure to sunlight, trees and foliage, access to home/ existing patios, privacy, view from inside the home, etc...

9) **Permits.** In areas where a swimming pool permit is required. It is important to note that on these plans, the pool should be drawn and scaled using inside dimensions/ water’s edge. Use the dimensions located on the spec sheet for that specific pool model.
STEP TWO: LAYOUT POOL

Prior to excavation. Layout the pool in the yard. Use the outside dimensions according to the pool specifications provided.

1) Rectangle Pool Shape: Using flags or stakes, set the location of the corner points. Be sure to check for square by running the diagonals. Run string lines or tape to outline. Follow the string line with paint to create an outline for the pool.

2) Freeform or Irregular Pool Shape: Using flags or stakes, set the location of one of the corner points. Be sure to check for square by running the diagonals. Now, mark the center line. From the center line out mark with paint every four feet the outside perimeter of the pool. Once you have marked all the dots, connect the dots to create the contour shape of the pool.

To figure the diagonal of the rectangle use the following formula:

\[
\text{Diagonal} = \sqrt{\text{length}^2 + \text{width}^2}
\]

3) Over dig/Clearance: Once you have the outline of the pool laid out. Decide how much of a clearance you want on all sides of the pool and mark it accordingly with yard paint. A typical over dig is 6”-12” on a standard fiberglass pool

*Fiberglass Pool Anchoring System™ Note: 12”-18” is standard on a fiberglass pool with the Geo-Anchor

*Fiberglass Pool Wall™

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**Figure 1: Wellspring 40 Spec Sheet Top View**

STEP THREE: ESTABLISH GRADE/ ELEVATIONS

Determine the ideal finished elevation of the pool deck. This should be determined by using a benchmark like a threshold, an existing patio or porch. Use a laser lever or a transit and shoot that benchmark at different points around the pool project and proposed patio, raise and lower the receiver on the grade rod. Make a note of the changes and prepare the homeowner for the finish grade. Discuss any major differences that will require a retaining wall.
STEP THREE: Excavation

Begin by understanding the key terms mention below.

Key Terms.

1) **Finish Grade**: The finish grade is the final elevation of the surface once all the earthwork and grading has been completed. This is typically used as the benchmark for which all other elevations will be based on.

2) **Slope**: The patio or deck must slope away from the pool. The average slope required is a ¼” fall for every foot.

3) **Top of Pool**: Is the elevation at the top of the fiberglass pool shell.

4) **Top of Coping at the Pool**: The elevation of the top of the coping at the pool’s edge. This is the summation of the top of the pool shell, thickness of the coping, and the slope.

5) **Thickness of Pool Base**: The depth of the gravel base/ chipped stone. We recommend a 4” base.

6) **Shallow End Depth**: Is given on the pool specification and is the depth of the shallow end from top of pool shell to bottom.

7) **Deep End Depth**: Is given on the pool specification sheet and is the depth of the deep end from top of pool shell to bottom.

8) **Shallow End Dig**: Is the amount of excavation required at the shallow end to make finish grade.

9) **Deep End Dig**: Is the amount of excavation required at the deep end to make finish grade.

10) **Over dig**: Is the clearance you have between the pool wall and the undisturbed unexcavated soil.

Once you understand the key terms, you can start calculating dig depths. To begin, paint hash marks outside the perimeter of the pool every four feet running the length of the pool. Label these hash marks 1, 2, 3 and so on... Label them according to which end you want to dig first. Now, calculate your dig depth for each of the hash marks using the following dig cheat sheet.
Step One: Determine Finish Grade
Finish Grade

Step Two: Determine Top of Coping
Slope (.25” per ft.)
Top of Coping

Step Three: Determine Top of Pool
Coping Thickness
Top of Pool

Step Four: Calculate Top of Stone Base
Top of Pool
Shallow End Pool Depth
Top of Stone Base Shallow End

Top of Pool
Deep End Pool Depth
Top of Stone Base Deep End

Step Five: Calculate Top of Dig
Top of Stone Base Shallow End
Thickness of Gravel/Stone Base
Top of Dig Shallow End

Top of Stone Base Deep End
Thickness of Gravel/Stone Base
Top of Dig Deep End

Step Six: Calculate Dig Depths
Now that we know our dig depths of the shallow/deep ends, we can calculate the dig depths that we marked and labeled every four feet.

To find the dig depths, use your calculated shallow end dig depth and find the difference between that and the next depth marker. That difference is then added to the shallow end dig depth.

1 ___________ 6 ___________
2 ___________ 7 ___________
3 ___________ 8 ___________
4 ___________ 9 ___________
5 ___________ 10 ___________

**It is easier to convert all measurements to either inches or feet.

As a double check, ensure the difference between the Deep End Pool Depth and the Shallow End Pool Depth is equal to the difference between the Deep End Dig and Shallow End Dig.

**Figure 3: Dig Cheat Sheet

**Figure 4: Cut Away

Concrete has to have some fall away from the pool edge. Standard ¼ inch for every ft.
Excavation Dos and Don’ts

- Whenever possible, start your excavation at the deep end.
- If you over excavate, do not fill it in with dirt. Use the recommended stone.
- Think about where your equipment is going to be located and your plumbing trench. You may need to dig the plumbing trench first.
- Be sure you dig out room for your skimmer(s) location.
- Be sure to dig out any muddy or soft soil. You want to make sure that your base is on solid virgin soil.
- Have a Rock/ Water/ Junk Clause in your contract. You never know what you are going to get into when you start digging the hole. It is important that you cover your bases in your contract. Many contractors have begun an excavation only to hit limestone or realize the developer used this backyard as a dump site. Both of which, will cost you time and money.
- Soil must be undisturbed. If not, the soil must be evaluated by an engineer for proper bearing and compaction and may require testing.
- Installation must meet all state and local building codes.

STEP FOUR: PREPARING BASE FOR POOL

Using the appropriate material and properly preparing the base for the pool is essential. The recommended material for the pool base is a clean angular chip stone ½” or smaller that will compact on placement and allow water to easily permeate.

Key Points
- Base material should be a clean angular chip stone ½” or smaller.
- Base should be a minimum of 4” thick.
- Avoid using pea gravel or a rounded stone, sand, or stone with fines/dust that will hinder permeability.
- Manual compaction of the fill may be required on depths greater than 4”.

Screed Method

Using 2” x 4” wood rails and metal stakes, set screed rails length wise in excavated hole. Set them to the outside edge of the pool’s floor and to the appropriate height using a transit or laser level. Make sure the diagonal is exact to ensure the bottom is square.
Place the fill material in between the rails getting as close to even with the top of the rails as you can. As you move the screed board across the rails, you are filling in gaps and removing excess material so that the base is at the right elevation. Prior to setting the pool, the rails with need to be removed and the gaps filled in.

**String and Rake Method**

Using metal stakes, set the stakes at the corners of the pool. Set them to the outside edge of the pool’s floor. Make sure the diagonal is exact to ensure the bottom is square. Now with duct tape, mark the stakes at the appropriate height using a transit or laser level. Run a tight string line from each stake using the top of your duct tape as your guide. Next, run a center string line. Fill the gravel in between the string lines. Don’t crush the string lines. Rake the gravel out. Keep the string lines free. You don’t want the string to rest on the gravel. Once you have your material completely raked out and at the appropriate level, remove the stakes and string lines. Prior to setting the pool, stakes need to be removed and gaps filled in.

**NOTE: Transitional Bottoms:** For pools that do not have a single constant slope (as shown below), each transition should be considered a bottom and treated with its’ own rectangle and diagonal.
Large Sun Shelves/ Tanning Ledges: Should be treated as the pool bottom with its own base. You want to make sure you are creating a firm foundation that won’t heave and move as the ground freezes. This may require more than four inches of base. In fact, base material should be at least to the depth of your geographic frost depth. This way you are setting your sun shelf on essentially a foundation.

STEP FIVE: PREPARING TO LIFT THE POOL

Choosing the right equipment to lift the pool is critical. Whether you choose a crane, telehandler, or excavator, it is crucial that you understand that equipment’s reach capacity and lift capacity. Never use undersized equipment. Never set up the crane too close to the excavation site. Crane must be on compacted backfill or virgin soil.

All our pools are designed to be lifted using four 20’ lifting straps and a crane. If you decide to use a spreader bar or spreader beam to help distribute the load, ensure when the pool is lifted off the trailer that the pool is level. If the pool is uneven then your center of gravity is off. Lower the pool back on to the trailer, make your adjustments and lift again.

Most crane operators will want to conduct a site survey to establish a lifting plan with you. Together, you will determine where the pool has to be lifted from and taken to. The following information is what the crane operator will need:

- Pools weight
- Overall dimensions (length, width, and depth)
- The height to which the pool has to be lifted.
- The number and location of lift points
Prior to lifting, inspect all lifting straps. Attach your guide ropes. Guy ropes will allow you to control the pool while it is in the air and prevent it from rotating or swaying while maintaining a safe distance.

**STEP SIX: SETTING THE POOL**

You are now ready to set the pool in the hole. It is a good idea to paint an outline of the pool on the base so that you can guide the pool down to the correct position minimizing lifting and resetting. Once the pool is set on the base, check the pool for level and position.

Remove your shoes and walk the entire floor of the pool. Make sure that the pool floor easily rests on the bottom as you walk. It is normal to feel a little give in the floor as you walk across the pool bottom but any voids in the base material detected, should be fixed. To fix voids or low spots, lift the pool back up and rake in base material. Once the pool is within ½” of level around the perimeter and the entire bottom rests firmly on the base, you can detach the lift straps and equipment.

**STEP SIX: INSTALLING PERIMETER TILE & WELL PIT/ GEO-HYDRO VALVE™**

Ensuring that ground water can properly drain away from the pool and that you have access to monitor ground was is vital. After the pool is set is an ideal time to run your perforated perimeter drain tile around the pools over dig and install your well pit. The well pit also known as a sump pit is an 8”-10” pipe that runs 1’ below the deepest depth of the pool up to the finished deck. They are usually finished off with a skimmer lid and screwed down for safety. This will allow you and the homeowner to monitor when ground water is present and if ever necessary, will provide you an avenue to pump the water out from around the pool. Installing a gravity drain or natural drain when available is strongly encouraged but does not replace the required well pit.

**STEP SEVEN: BACKFILLING & LOCKING POOL IN**

The recommended material for the pool base is the same as the pool base material -a clean ½” or smaller chip stone or angular gravel. The characteristics of this backfill material include the following:

- 1/2“ or smaller in size.
- Not rounded (no pea gravel).
- High compaction rate on placement.
- Allows water to permeate.
- Clean or washed. No fines or dust.

The first step is to lock in the pool. This is done by initially placing 6”-12” up against perimeter of the pool making sure that all radiuses and transitions are packed tight. You should not be able to see space between the radius of the pool floor and the pool base. Do not rush this stage. Compact thoroughly.

Once you have the pool locked in, outfitting the pool can begin.

**STEP EIGHT: OUTFITTING THE POOL/ PLUMBING**

We recommend using 2” rigid schedule 40 PVC, but flex pipe can be used if cares are taken to prevent potential termite damage. All plumbing lines should be supported either by running them to the bottom of the excavation or by attaching them to the top of the pool coping with zip ties or something similar.

Pool main drains are not recommended but if installed must conform to ANSI/ASME standards and the Virginia Graham Baker Act.
With a marker, mark on the inside of the pool where you want to place your returns and lights. Check the backside of the pool to ensure you are avoiding cored areas and lift points when possible. Using the correct size hole saw, cut in the lights and returns. Remove any gaskets, they are not to be used. Place a bead of silicone on both sides of the fitting. Using channel locks, tighten return and light fittings until snug. Liberally apply silicone on the backside perimeter of the fittings.

For the skimmer, place the faceplate of the skimmer ¼” - ½” down from the top of the coping and mark the inside skimmer plate and holes. Cut out the skimmer square using a cordless drill and a sawzall or jig saw. Place the faceplate in the hole and make sure the holes line up. Drill out the rest of the holes. Cut out the coping so the skimmer fits flush. Grind down the backside of the pool until smooth. Remove any gaskets that may have come with the skimmer and do not use. Fill the mouth of the skimmer with silicone, place a bead of silicone on the backside of the skimmer hole, and along the backside of the faceplate. Mount the skimmer onto the pool. Liberally apply silicone to the backside perimeter of the skimmer.

Once the pool is outfitted, run all lines to your equipment pad. Equipment should be located in close proximity of the pool and ideally at the same elevation level or slightly above.

**Outfitting Dos and Don’ts**

- Always check the backside of the pool prior to starting any cut-ins. You want to avoid cored areas and lift points when possible.
- Cut-ins should be made from the inside of the pool shell out.
- Wear safety goggles and a mask to prevent inhaling fiberglass dust.
- Returns should be placed 14” down from the top of pool coping.
- Lights should be placed 18” down from the top of pool coping.
- Do not use gaskets. Use 100% silicone.
- Grind backside smooth before sealing any wall fittings.
- Do NOT install skimmer too low. Top of faceplate should be ¼” - ½” from the top of the coping.
- Do NOT install skimmer until pool is locked in and will not be lifted again.
- Avoid double 90s.
- Always clean PVC with acetone prior to gluing and glue both the inside and outside of PVC connections.
- Do pressure test all lines.

*Fiberglass Pool Anchoring System™ Note:* Once the pool is locked in and before water is an ideal time to install the Geo-Hydro Valve™. The inside of the pool is marked where the wall fitting for the valve should go. Using your properly sized hole saw (3 ½”), cut in the hole. Grind the back side until smooth. Install using a bead of silicone on each side. Do not overtighten. Liberally silicone the back. Always clean with acetone prior to gluing and glue inside and outside of the PVC and install one-piece Geo-Hydro Valve™ into the wall fitting.

**STEP NINE: CONTINUE BACKFILLING**

Begin by adding a foot of water into the pools deep end. After 1’ of water has been added to the deep end of the pool, start placing the backfill material until it reaches the height of the water fill. Continue adding water then backfilling in increments of 1’ until it is complete. Take care to consistently check pool for level and that all benches, steps, ledges, and radiuses are being properly compacted. As water is added and without the support of the backfill steps, ledges and benches may sag. Make adjustments immediately to ensure pool remains level.
Pool walls can bow in and out if too much water or backfill precedes the other. If a pool wall bulge occurs, dig out the backfill material and allow the water to push the wall back out. For long straight wall pools, we recommend running a string line end to end along the pool coping. This is a useful guide to keeping your pool wall straight.

**Fiberglass Pool Anchoring System™** Note: Once backfill reaches a row of the Geo-Anchor Fiberglass Pool Wall™, simply clip off the zip ties and unroll the specially formulated woven glass material onto the fill and continuing backfilling as normal.

Backfill material should reach within 8” of the top of the pool coping and provide a base of 4” anywhere a concrete patio is going to be poured. You want to have an area of 8” from the top of the pool coping and 12” out that is void of backfill. This is where you will pour a concrete bond beam.

Anchors for sport units, handrails, ladders etc... should be set flush with the top of the pool deck and bonded prior to pouring concrete. Follow the manufacturers specs on installation such as the minimum anchor set back and distance between anchors. **Important note: Thursday Pools requires a handrail(s) to be installed on every pool.**

**NOTE:** Fiberglass pools require 9 square inches of bonded metal to touch the water in the pool. Bondsafe 680 and the Pool Bond by Permacast are two recommended products to help you meet code.

**STEP NINE: POURING CONCRETE/ BOND BEAM**

We recommend pouring a 12” wide concrete bond beam. If using Rhino-Rods, first install them around the outer most lip of the coping as shown in Figure 9. Space the rods around the pool perimeter equally. The top of the Rhino-Rod should only be a ½” or so above the lip. Concrete should be poured to encase the pool coping. Work the concrete under the coping. Wire mesh should be used in the concrete deck. The bond beam should be poured to within a ¼” of the top of the coping. You want to make sure that you have some fall for any surface water to drain away from the pool.

By leaving the 8” gap between the fill material and the top of the coping forming, this gave us the opportunity to pour an 8” thick bond beam around the perimeter of the pool. This bond beam will aid in keeping the pool and deck structurally secure.
Now, you can finish the pool off with pavers or cantilever concrete.

A cantilever concrete deck is standard on most fiberglass pools. This requires that a foam form be placed on the inside perimeter of the pool. These foam forms are usually attached using double sided tape and held in place by wire ties and screws. Installations with an automatic safety cover use a set of reusable aluminum forms that attach inside the track. A minimum of 4” of the backfill material should be used as the foundation for a concrete patio and concrete should be poured at least 4” thick.

*** LEAVING THE TOP OF THE POOL COPING EXPOSED IS PROHIBITED. ***

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**WARNING**: Failure to read and follow specific instructions in this guide will VOID your pool warranty.

This fiberglass pool is designed to be built inground and remain full of water at all times. Full is determined by where the water level is at in comparison to the skimmer. Water level should be midway to three quarters up the skimmer. If water lowering or draining of the pool is ever required, the pool owner or their representative must contact Thursday Pools LLC in advance to ensure proper procedures and conditions are met. Any lowering of the pool water level below the skimmer VOIDS your warranty.

Thursday Pools LLC is not responsible for problems that arise in pool equipment, filtration, water pressure, deck/patio installation, automatic safety covers, or lights. Refer to Thursday Pools LLC Warranty for specifics.
INSTALL BEST PRACTICES & REQUIREMENTS

Pool Base:
- 4” Thick of Chip Stone ½” or smaller recommended.
- Compacted if base depth is greater than 4”

Backfill Material:
- Chip Stone ½” or smaller recommended.
- No Sand
- No Pea Gravel
- Backfill placed within 12” of water level in pool

Pool Handling:
- No Short strapping
- Pool unloaded completely empty of water and/or equipment

Pool Setting and Leveling:
- Finished pool within 1” max tolerance with a goal of ½” or less
- Pool walked between each set to check for voids

Plumbing:
- Schedule 40 PVC or larger
- No flex pipe unless termite preventive measures are taken
- Pressure fittings only (no shallow sockets)
- No 90 degree fittings on skimmer line with exception of where it stubs up
- Sweep 90’s recommended everywhere
- 2” PVC minimum for suction lines (Skimmer)
- Plumbing secured and supported by either strapping to pool coping using zip ties or running to bottom of excavation
- All plumbing pressure tested
- Flex pipe is allowed on spas when needed

Outfitting:
- No gaskets (exceptions for some lights)
- 100% Silicone Sealant used only
- Backside of pool shell ground perfectly flat and smooth
- Skimmer Installed with faceplate within 1” of top of pool

Handrail:
- Required handrail(s) installed.

Drain Pipe/ Well Pit: (Required)
- 8” minimum diameter Pipe
- Installed 12” below bottom of the deep end of pool with at least 2” of gravel beneath
- topped with skimmer lid with screws for securing

At Completion:
- Ensure pool owners receive necessary safety equipment such as a life ring, safety pool hook with telescopic pool and throw rope.
- Ensure pool owners receive a ‘pool school’ on how to operate and maintain their new pool.

**ALL INSTALLATIONS MUST MEET FEDERAL, STATE, AND LOCAL BUILDING CODES**