Installation Manual:

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STEP ONE: Complete an onsite evaluation.

An onsite evaluation will allow the Dealer to evaluate and consider all costs involved with the project; prepare, educate, and manage the expectations of the homeowner as well as alleviate any 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 the pools’ proposed 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 the best location for construction equipment to gain access the proposed pool location and use throughout the construction process. We recommend you check to see if you’ll need to obtain an access waiver?

4) **Pool Delivery.** Determine the best way to get the pool to its’ proposed location and what equipment it will require to accomplish this task. Consider the placement of unloading equipment to remove the pool from the truck and install in the excavated location. We recommend delivering the pool straight from the trailer to the excavated location.

5) **Equipment Location.** Discuss with the homeowner the ideal location for the pool equipment that will allow for efficient operation while remaining inconspicuous. This location should be easily accessible for any maintenance. Ensure the location meets all applicable building codes and Homeowners Association requirements. Make sure the equipment location is not within your temporary construction access route.

6) **Electrical.** Check the existing electrical panel to ensure enough spare circuits are available for the proposed equipment and consider the route from the panel to the proposed equipment location to confirm that it will work efficiently. Always have a licensed electrical contractor perform any and all electrical work.

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

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

9) **Permits.** In areas where a swimming pool permit is required, it’s 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 specifications sheet for that specific pool model.
STEP TWO: POOL LAYOUT

Prior to beginning any 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 diagonal measurements. Run string lines or tape to outline the shape, then 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 diagonal measurements. Mark the center line of the shape, then from the center line out mark, with paint, every four feet the outside perimeter for 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.

4) **Soil Boring Test.** At this point we recommend conducting a soil bearing pressure test. A Soil Boring Test is a type of geologic engineering test to determine the capability and type of the soil in a given area. Usually several borings of varying depths are required to accurately determine the existing soil bearing pressure for the swimming pool installation. A minimum soil bearing pressure of 3,000 psi is recommended.

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

Figure 1: Wellspring 40 Spec Sheet Top View
STEP THREE: ESTABLISH GRADE/ ELEVATIONS AND EXCAVATION

Determine the ideal finished elevation of the pool deck. This should be determined by using a benchmark as a threshold such as an existing patio or porch. Use a laser lever or a transit to 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.

Begin by understanding the key terms defined below.

**Key Terms.**

1. **Finish Grade:** The finish grade is the final elevation of the surface once all the earthwork and construction 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 crushed/ chipped stone base. We recommend a 4” base.
6. **Shallow End Depth:** Is given on the pool specification sheet 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 between the pool wall and the undisturbed unexcavated soil.

Once you understand the key terms you can start calculating excavation 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 the end you’ll excavate first. Now, calculate your excavation 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 4: Cut Away

Figure 3: Dig Cheat Sheet

Slope
Concrete has to have some fall away from the pool edge. Standard ¼ inch for every ft.

Coping Thickness/ Gunite Retainer or

Depth of Pool

Stone Base Thickness

Drain tile to well pit.
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 as well as your plumbing trench. You may need to dig the plumbing trench first.
- Be sure you excavate the required area for your skimmer(s) location.
- Be sure to remove any muddy or soft soil areas. You want to make sure that your base is on solid undisturbed soil.
- We recommend a ‘Rock/ Water/ Junk’ Clause in your contract. You never know what you are going to get into when you start excavating. 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 ½” or smaller (No.78 - course aggregate) crushed stone base compacted to 95% standard proctor and will allow water to easily permeate the stone. All base material shall be placed on compacted or undisturbed soil.

Key Points

- Base material should be a clean ½” or smaller (No.78 – course aggregate) crushed stone compacted to 95% standard proctor and should be a minimum of 4” thick.
- Pea gravel or a rounded stone, sand, or stone with fine/ dust that will hinder permeability is not acceptable.
- On base depths greater than 4”, manual compaction of the stone fill may be required to achieve the 95% standard proctor rating.

Screed Method: Using 2” x 4” wood rails and metal stakes, set the screed rails length wise in the excavated hole. Set them to the outside edge of the pool’s floor and to the appropriate elevation using a transit or laser level. Confirm the diagonal measurement is exact to ensure the bottom is square.
Place fill material between the rails getting as close to even with the top of the rails as possible. As you move the screed board across the rails, you are filling in gaps and removing excess material making the base the correct elevation. Prior to setting the pool, the rails will need to be removed and the any gaps filled.

**String and Rake Method:** Set metal stakes at the corners of the pool. Set them to the outside edge of the pool’s floor. Confirm the diagonal measurement is exact to ensure the bottom is square. Now, with duct tape, mark the stakes at the appropriate elevation using a transit or laser level. Run a tight string line from each stake using the top of your duct tape as your guide elevation. Next, run a center string line and fill crushed stone between the string lines. Don’t crush the string lines. Rake the gravel out while keeping the string lines free. You don’t want the string to rest on the crushed stone. Once you have your material completely raked out and at the appropriate level, remove the stakes and string lines. Prior to setting the pool, the stakes need to be removed and gaps filled.
**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:** These should be treated as the pool bottom with its own base. You want to confirm you are creating a firm foundation that won’t heave and move as the ground freezes. This may require more than four inches of stone base. In fact, base material should be set to, at least, the elevation of your geographic frost depth. This way you are essentially setting your sun shelf on a solid 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 the equipment’s reach and lift capacity. Never use undersized equipment. Never set the crane too close to the excavation site. The crane must be on compacted backfill or undisturbed 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 it is level. If the pool is uneven, your center of gravity is off. Lower the pool back on 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 should to be lifted from and taken to. The following information will be required by the crane operator:

- Pool 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 for potential problems. Attach your guide ropes. Guide 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 excavated location. We recommend painting 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 making sure 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 however, if any voids in the base material detected, they be fixed prior to continuing. To fix voids or low spots, lift the pool up and rake base material into the detected void. 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 any setting equipment.

STEP SEVEN: INSTALLING PERIMETER TILE, WELL PIT AND GEO-HYDRO VALVE™

Ensuring the ground water can be properly drained away from the pool and having access to monitor ground water was is vital. After the pool is set, is an ideal time to install your perforated perimeter drain tile in the pools over dig area and install your well pit. The well pit, also known as a sump pit, is an 8”-10” pipe that runs 12” below the deepest depth of the pool and up to the finished deck. It’s are commonly finished off with a skimmer lid and screwed down cap for safety. This will allow you and the homeowner to monitor when ground water is present and, if ever necessary, will provide you with 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 EIGHT: BACKFILLING & SECURING POOL IN POSITION

The recommended material for the pool fill is the same as the pool base material - clean ½” or smaller (No.78 - course aggregate) crushed stone. The characteristics of this backfill material include the following:

- Angular stone 1/2“or smaller in size.
- Rounded (no pea gravel) is prohibited.
- A backfill compaction rate of 95% standard proctor is required.
- Clean or washed stone. No fines or dust is permitted. This will allow water to permeate the stone backfill.

The first step is to secure the pool in place. This is done by initially placing 6”-12” of stone 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 the stone thoroughly.

Once you have the pool secured in place, outfitting the pool can begin.

STEP NINE: OUTFITTING THE POOL/ PLUMBING

We recommend using 2” rigid (schedule 40) PVC, however flex pipe can be used if precautions are taken to prevent potential termite damage. All plumbing lines should be supported by running them on the bottom of the excavation or by attaching them to the top of the pool coping with zip ties or other accepted methods.

Main pool drains are not required 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 the desired placement of your returns and lights. Check the backside of the pool to ensure you are avoiding any cored areas and/ or lift points when possible. Using the correct size hole saw, cut in the lights and returns. Discard any gaskets, they are not to be used in this installation. Place a bead of silicone on both sides of the fitting and, using channel locks, tighten the 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” below the top of the coping and mark the inside skimmer plate and holes on the pool. Cut out the skimmer square using a cordless drill and a reciprocating saw (Sawzall) or jig saw. Place the faceplate in the hole and make sure the holes line up. Drill out the rest of the holes and cut out the coping so the skimmer fits flush. Grind down the backside of the pool until smooth. Discard any gaskets that came with the skimmer and do not use in the installation. 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 and liberally apply silicone to the backside perimeter of the skimmer.

Once the pool is outfitted, install all lines to your equipment pad. Equipment should be located in close proximity to the pool and ideally at the same elevation 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” below the top of the pool coping.
• Lights should be placed 18” below the top of the pool coping.
• Do not use gaskets in the installations. Use 100% silicone.
• Grind backside of pool smooth before sealing any wall fittings.
• Do NOT install skimmer too low. Top of faceplate should be ¼” - ½” below the top of the coping.
• Do NOT install skimmer until the pool is secured in place and will not be lifted again.
• Avoid double 90-degree bends.
• Always clean PVC with acetone prior to gluing and glue both the inside and outside of all connections.
• Pressure test all lines is required.

**Fiberglass Pool Anchoring System™** Note: Once the pool is secured in place and before water is added, is the 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 and install using a bead of silicone on each side. Do not overtighten. Liberally apply silicone to the backside. Always clean with acetone prior to gluing and glue inside and outside of the PVC fitting. Install one-piece Geo-Hydro Valve™ into the wall fitting.

**STEP TEN: CONTINUE BACKFILLING**

Begin by adding a foot of water into the pools deep end. After the 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 and backfilling in 1’ increments until the fill is complete. Take care to consistently check pool for level making sure all benches, steps, ledges, and radiuses are being properly supported. As water is added (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 walled pools, we recommend running a string line from 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 be installed to 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’ll want to have an area of 8” below the top of the pool coping and 12” wide left 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 any concrete. Follow the manufacturers specifications on the installation requirements, 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” or the Pool Bond by “Permacast” are two recommended products to help you meet code.
STEP ELEVEN: POURING CONCRETE/ BOND BEAM

We recommend pouring a 12” wide concrete bond beam around the top of the pool. Concrete bond beam shall have a minimum 4,000 psi strength rating after 28 days. 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. Woven wire fabric should be used in the concrete deck. The bond beam should be poured to within a ¼” of the top of the coping. You’ll want to make sure that you have positive drainage of any surface water away from the pool.

By leaving the 8” gap between the fill material and the top of the pool coping, gives 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 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. All concrete should be poured at least 4” thick and have a minimum 4,000 psi strength rating after 28 days.
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. The term ‘Full’ is determined by where the water level is in comparison to the skimmer. Water level should be midway to three quarters up the skimmer face. 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.
INSTALLATION BEST PRACTICES & REQUIREMENTS OVERVIEW:

Pool Base:
- 4” Thick pool base of ½” or smaller (No.78) crushed stone is recommended.
- Compaction is required if base depth is greater than 4”

Backfill Material:
- ½” or smaller (No.78) crushed stone is recommended.
- No Sand is allowed.
- No Pea Gravel is allowed.
- Backfill to be placed (alternating) within 12” of water level in pool.

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

Pool Setting and Leveling:
- Finished pool leveling within 1” max tolerance with a goal of ½” or less.
- Walk pool between each setting to check for voids is required.

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

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

Handrail:
- Required handrail(s) shall be installed.

Drain Pipe/ Well Pit: (Required)
- 8” minimum diameter Piping shall be used.
- Installed 12” below the bottom of the deep end of pool with at least 2” of gravel beneath.
- Top pipe/ pit with skimmer lid and screws in place securely.

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**