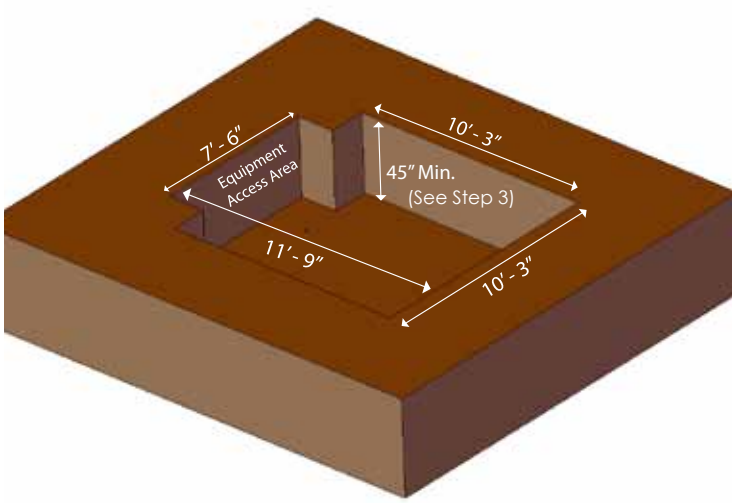
SpaVault™ Installation Guide for Bullfrog Spas (7'-10" x 7'-10" x 36")

WARNING - When unpackaging SpaVault, DO NOT discard styrofoam pieces, these are not packaging materials.

Step 1 – Excavation

A. Select spa site, determine finished elevation, and the direction the spa equipment will be facing. Ensure that surrounding surfaces slope away from the SpaVault.
B. **Important:** Prior to excavation, schedule to have local utility companies mark any buried utility lines.
C. Excavate hole to accommodate SpaVault. Minimum excavation to be 10'-3" x 11'-9" x 45" deep from finished elevation (if a 10" bed of gravel is determined to be a sufficient drain sump, excavation depth may need to be deeper depending on the soils ability to drain – see Step 3). Note: If spa is to be installed partially above finished grade, see Step 9.



Step 2 – Rough Electrical

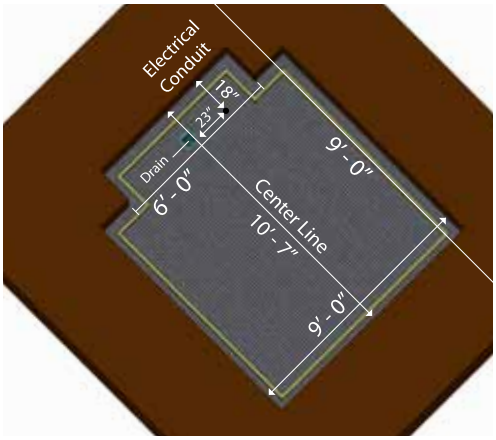
Install rough electrical conduit into equipment access area as specified in Step 4 Diagram (18" in and 23" off center line). **Important:** Electrical service and ground bonding must meet all National and Local Electrical Codes. Consideration for an Equipotential Bonding Grid may be required.

Step 3 – Gravel Base

A. Backfill the bottom of excavated hole with a minimum of 10" of gravel to create a drainage sump and prevent the SpaVault from filling with water. **Note:** It is the installer's responsibility to determine how much gravel is required to prevent the SpaVault from filling with water due to storms, runoff water, high water tables, etc. If conditions are such that a 10" bed of gravel is not sufficient to prevent the SpaVault from flooding, the depth of the gravel should be increased to a sufficient depth.
Note: If it is unclear how much gravel is required or if high ground water tables are present in spa location, consult a local Geotechnical Engineer to design a system adequate to prevent water from entering into the SpaVault.
B. If it is determined to increase the gravel depth over 10", the excavation depth will also need to be increased by the same amount.

Step 4 – Concrete Pad

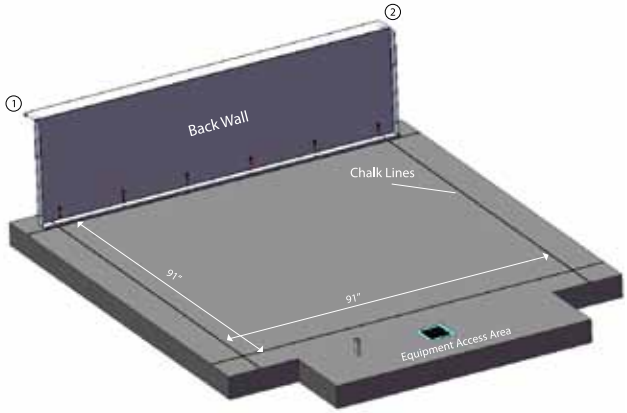
A. Install concrete forms (on top of gravel) for a 4" thick concrete pad. Concrete pad should be a **minimum** of 9'-0" x 10'-7". **Important:** the concrete pad must be poured level in all directions.
B. Pre-set drain. Drain should be located in the equipment access area of the SpaVault. The top of the drain should be set level with the top of the concrete forms.
C. Pour and finish a 4" thick concrete pad.
D. Remove concrete forms and allow concrete to cure.

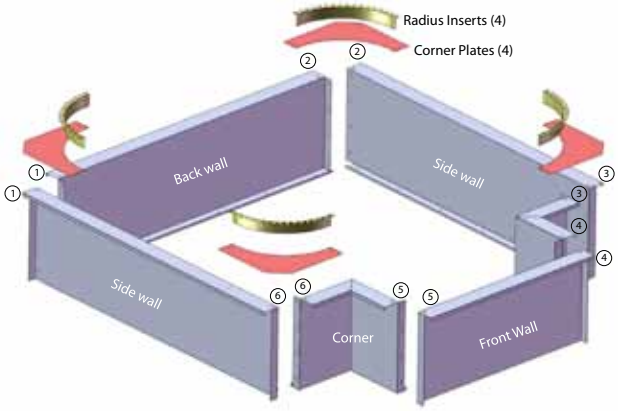


Step 5 – Install SpaVault Walls

A. Using a chalk line, mark a 91" x 91" square on the concrete pad. **Note:** The square markings are for the main spa area only and not for the equipment access area.

B. Place the Back Wall (wall labeled with corners 1 and 2)centered along the back chalk line (opposite of spa equipment end) with the bottom flange facing in toward the center of the SpaVault. Mark the center of each hole. Using the special sized concrete drill bit (included in the kit) drill a 3-1/2" deep hole at each marking. Clear dust from holes and attach the back wall to the concrete pad using the 2-1/2" concrete anchor bolts, securing firmly.



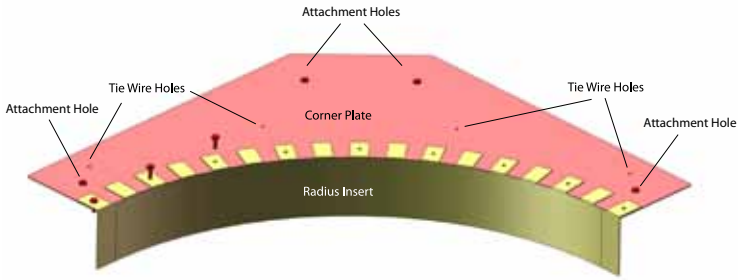


C. Install the Side Walls by aligning the numbers on the top rails to the same number on the back wall. Fasten the Side Walls to the back wall, using four 1/2" bolts per corner. Align the walls so that the bottom flanges align with the chalk lines. Using the special sized concrete drill bit (included in the kit), drill 3-1/2" deep holes through each of the holes in the bottom wall flanges. Attach the Side Walls to the concrete pad using the 2-1/2" concrete anchor bolts, securing firmly.

D. Install the Corner Walls by aligning the numbers on the top rails to the same number on the Side Walls. Fasten the Corner Walls to the Side Walls, using four 1/2" bolts per corner. Align the corners so that the bottom flanges line up to the chalk lines.

E. Install the Front Wall by aligning the numbers on the top rails to the same number on the Corner Walls. Fasten the Front Wall to the Corner Walls, using four 1/2" bolts per side. Using a framing square align the Front Wall and the Corner Walls ensuring they are square. While the Corner Walls and the Front walls are square, mark the center of each hole in the bottom flanges. Using the special sized concrete drill bit (included in the kit) drill a 3-1/2" deep hole at each marking. Attach the Front and Corner Walls to the concrete pad using the 2-1/2" concrete anchor bolts, securing firmly.

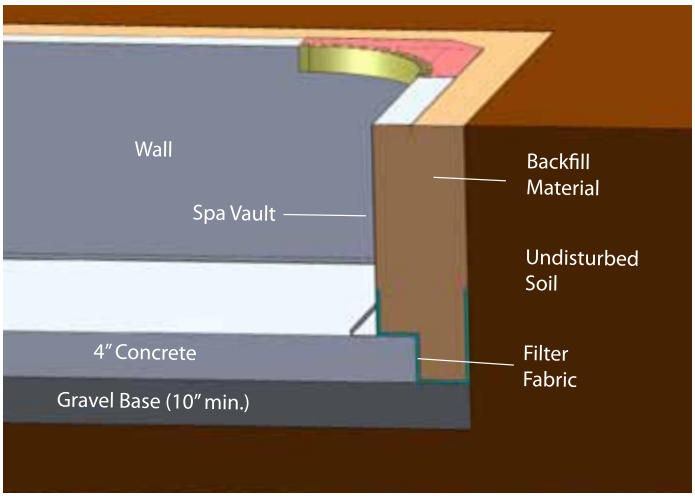
F. Using the #10 X 3/4" self-tapping screws, install the four Corner Plates on the outside corners, aligning the four attachment holes over the pilot holes in the top wall flanges.



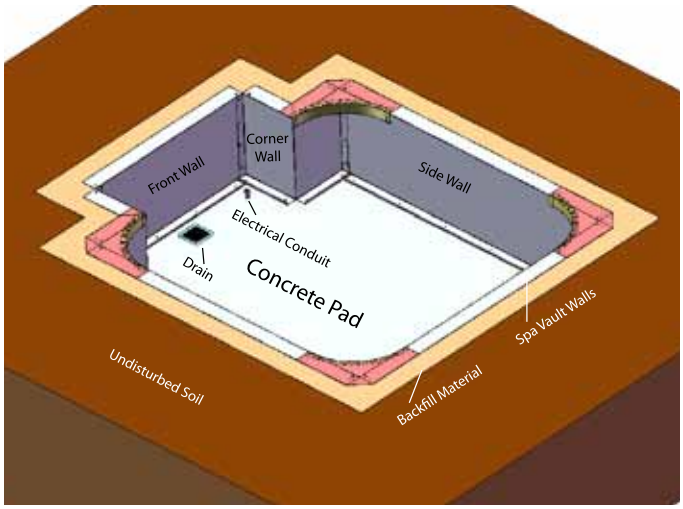
G. Install the Radius Inserts onto the Corner Plates, starting at one end, align the hole in the first tab of the Radius Insert over the pilot hole in the Corner Plate and attach it using a #10 X 3/4" self-tapping screw. While bending the Radius Insert along the Corner Plate as shown above, align each tab with a hole over the corresponding pilot hole in the Corner Plate and secure with the #10 X 3/4" self-tapping screw.

Step 6 – Backfill Perimeter of SpaVault

A. Place filter fabric over all exposed gravel overlapping the concrete pad and 6" up the back side of the SpaVault walls and 12" up the excavated wall.



B. If the over-excavation around the SpaVault is kept to a minimum, the void between the excavated soil and the back of the SpaVault can be backfilled with pea gravel or sand. If using sand, use water from a hose to wash the sand tightly around the SpaVault. As sand is placed into the void around the SpaVault, a continuous flow of water should be used to wash the sand down into all voids. Continue this process until sand has entirely filled all voids and is level with the top of the SpaVault walls. **Note:** It is the installer's responsibility to ensure both the materials and methods for backfill and compaction around the exterior of SpaVault is acceptable for installing concrete over it.

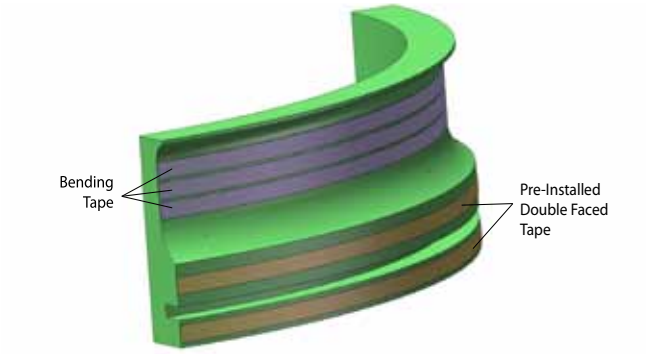


Step 7 – Installing Finished Cap on SpaVault

Option 1: Finished Concrete Cap

A. Using Stegmeier "Cantilever Forms" that are included in the kit, set the forms on the day of the concrete pour.

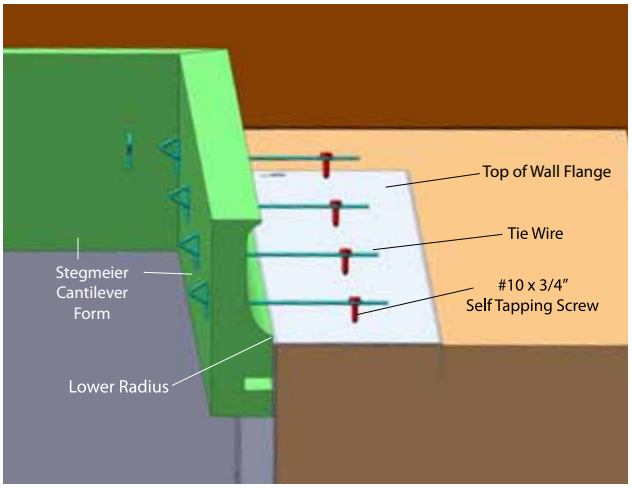
B. Apply three (3) strips of bending tape to the inside of the forms (as shown below). Rub bending tape down firmly.



C. Pre-bend form over your knee while applying slight pressure on either side of the form with your hands and forearms. Do this slowly!

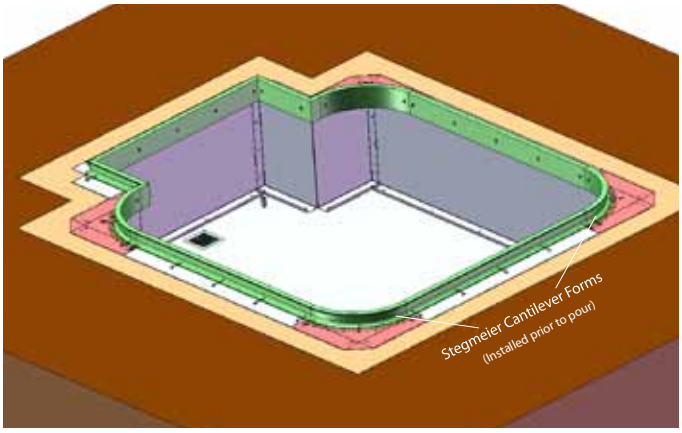
D. Remove brown paper from double-faced tape.

E. Stick forms to the top of the SpaVault walls, placing the lower radius of the form even with the top of the SpaVault walls (as shown below).

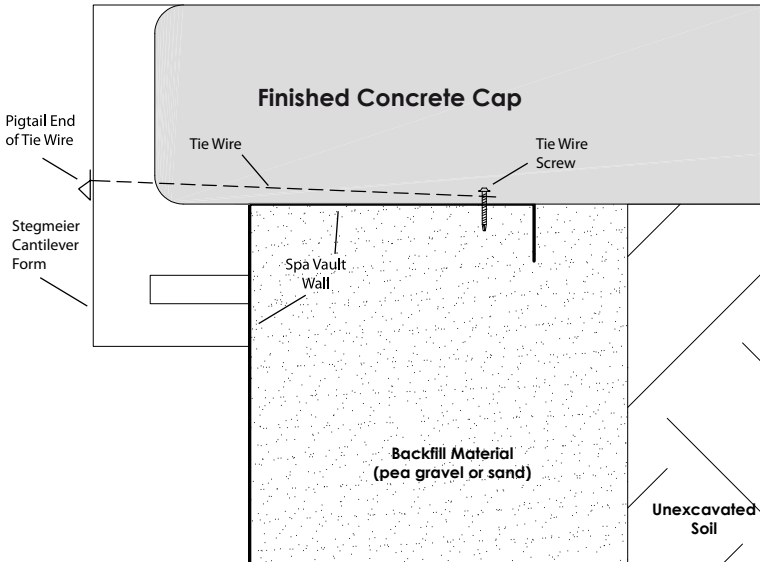


F. Install tie wires by inserting #10 X 3/4" self-tapping screws halfway into the pilot holes on the top flange of the SpaVault walls approximately 1/2" from the back edge of the wall flange.

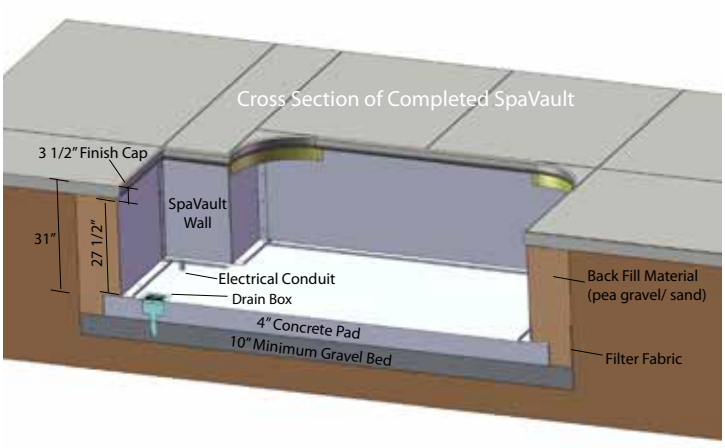
G. Press the tie wires through the front of the forms and secure them with a turn around the tie wire screw while applying slight pressure against the form.



H. Pour and finish concrete as normal. A Finishing Profile Edging Tool is provided to help finish the cantilevered edge. **Note:** When removing the forms after the concrete has properly cured, a twist on the pigtail end of the tie wire severs the tie wire below the finished surface. **Forms should be removed the same day concrete is poured.**



Option 1: Finished Concrete Cap



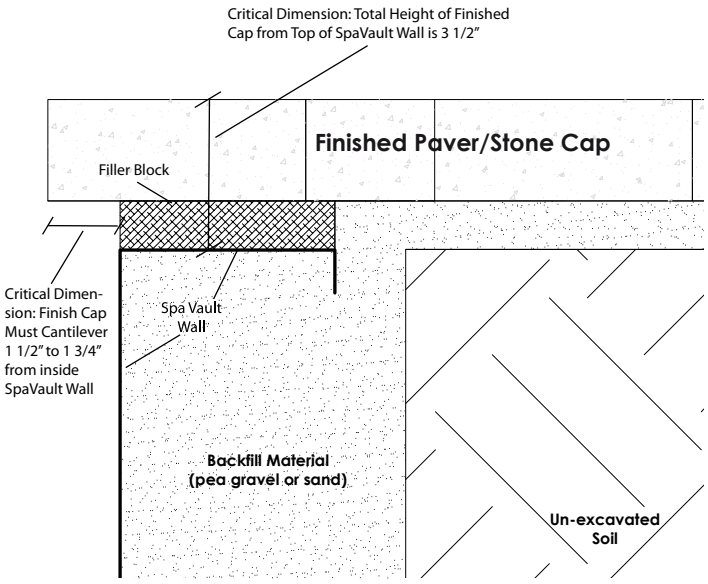
Option 2: Pavers or Stone Finished Cap

Note: The SpaVault was designed to use the "Stegmeier Cantilever Forms" included in the SpaVault Kit, however, Pavers, Stone or other materials may be used. It is the installer's responsibility to customize the Finished Cap materials to accommodate the following Requirements.

A. Finished Cap must be 3-1/2" Thick.
The SpaVault is designed to have a 3-1/2" thick Finished Cap installed on top of the SpaVault walls in order for the finished depth of the SpaVault to accommodate the height of the spa. If using a material that is thinner than 3-1/2" thick, it is the Installer's responsibility to block up on top of the SpaVault walls with a material that will accommodate the thinner Finish Cap material.

B. Finish Cap must cantilever the SpaVault walls by 1.5" on all walls, including the equipment access area. The SpaVault is sized to accommodate a 7'-10" X 7'-10" Spa only after the cantilevered Finish Cap is installed. The SpaVault is designed to have a small gap (approx. ¾") between the Finished Cap and the Spa.

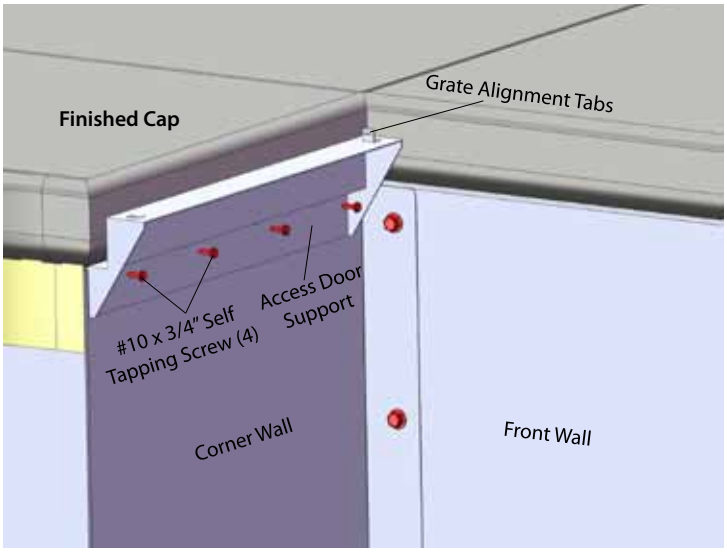
Note: If the Finished Cap is not poured concrete. The installer may choose to place the spa centered into the SpaVault prior to installing the Finished Cap. This allows the installer to fine tune both the finished thickness and cantilever of the Finish Cap during installation.



Option 2: Finished Paver/Stone Cap

Step 8 – Access Door Supports

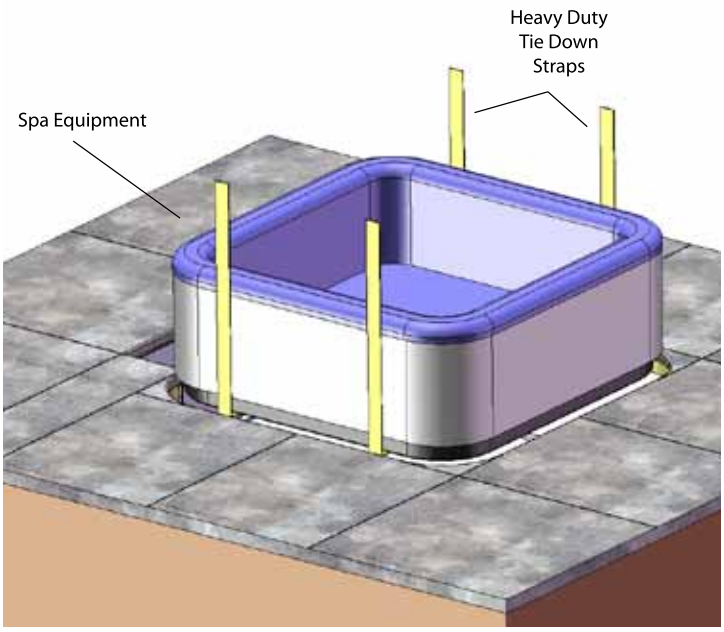
Install Access Grate Supports on each end of the spa equipment access area by aligning the holes in the brackets over the pilot holes of the Corner Walls and attaching with four #10 x 3/4" self-tapping screws.



Step 9 – Lowering Spa into SpaVault

Note: If desired spa elevation is different than the standard installation, add a layer of gravel (inside SpaVault) on top of the concrete pad until it meets the desired elevation.

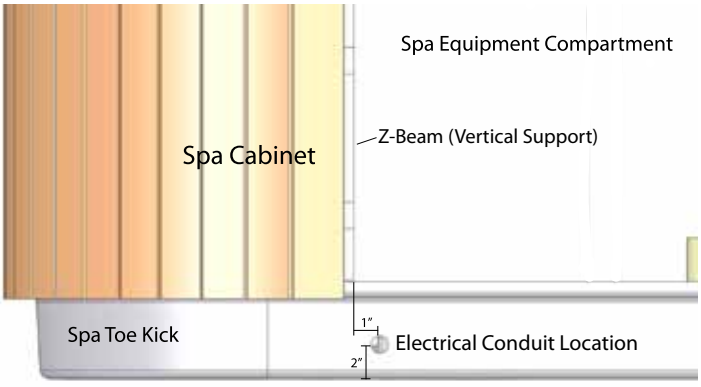
Lower Bullfrog Spa into the SpaVault using heavy-duty tie down straps and an adequate number of people. Note: The SpaVault design allows a small gap between the finish concrete edge and the spa providing room to lower the spa with tie down straps.



Step 10 – Electrical Connection

A. A licensed electrician is required to complete the electrical service and proper ground bonding of the Spa Vault to the Electrical Serivce in the spa equipment compartment. Consult the Spa Owner's Manual and follow all National and Local Electrical Codes.

B. Drill electrical conduit hole in spa toe kick. With the Spa Equipment door off, locate the "Z-Beam" (vertical spa support) located on the left side of the spa equipment compartment. Measure off of the edge of the Z-Beam 1" and up from the bottom of the spa base 2" and drill adequate sized hole for electrical conduit. Note: Be careful not to drill through Z-Beam, spa equipment or plumbing.



Step 11 – Access Grate

Install the Access Grate by resting it on the Access Grate Supports. Ensuring the foot of the grate rest against an alignment tab on each support.