

Cedar Hot Tub Assembly Instructions

Introduction:

Thank you for selecting a Zen Bathworks tub! Your hot tub will provide many years of soaking enjoyment. Assembly will be easier if you follow the correct sequence of steps and use the proper tools. ***Please take the time to read the instructions completely and carefully before starting the assembly process.***

How wooden tubs hold water: *The tub is assembled dry. Because dry wood will swell a significant amount when saturated with water, all the joints compress tightly allowing the tub to hold water.*

Special note: It is important to keep the tub floor and side staves stored in a dry place until assembly time. If the tub gets wet prior to assembly, the wood may swell to a larger size making assembly much more difficult and slowing the sealing of the tub.



Figure 1.1: Cover, floor panels, staves, compression straps, benches.

Section 1: Packing List

Locate the enclosed packing list to identify and confirm that all items are included. A copy of the packing list is inside the packaging. See Figure 1.1 to help identify the major parts.

Section 2: Tools and Supplies Needed

A few basic tools and items are needed to complete the assembly of your new tub. Gather what you will need before you start.

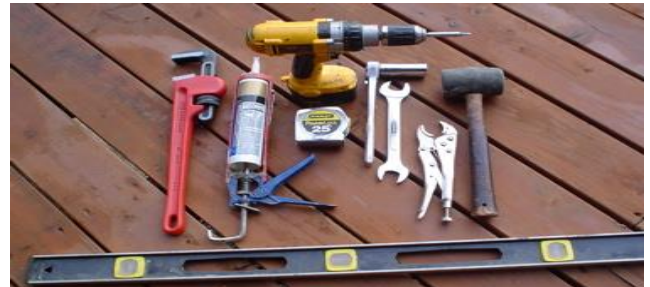


Figure 2.1 tools required

- ✓ A large rubber mallet (handle the length of a normal hammer, head the size of a soup can)
- ✓ Small tape measure
- ✓ Screw gun
- ✓ #2 square drive and Phillips bit for screw gun
- ✓ Carpenters' level (2' or longer)
- ✓ 15/16" open end, socket, or crescent wrench
- ✓ Vise Grip pliers
- ✓ Caulking gun or squeeze tube of clear silicone
- ✓ Medium sized pipe wrench
- ✓ 4" x 6" timbers for floor support - referred to as "chine joists" in section 4

Section 3: Site Preparation

Before assembling your tub, prepare a suitable spot for it. Hot tubs will weigh from 1500 to 8000 lbs. when full of water - so a stable foundation is essential. Cedar tubs should be installed outdoors. You must provide for good drainage and a solid foundation.

Outdoor installation: Good drainage is vital so that water from splashing, overflow, cleaning and draining operations can be carried away from the site.

There are four basic styles of foundation for your tub. You may consider a concrete pad, a gravel pad, piers made of concrete or treated wood, or a deck. See Figures 3.1 through 3.4 for ideas.

3.1 A concrete pad forms an excellent base for your tub. A properly poured 4" reinforced pad will be stable and resistant to frost heave. Size the pad so that the sides are about as long as the diameter of the tub. Example: For a tub 6' in diameter, pour a 6' x 6' pad.

3.2 A gravel pad can be a simple foundation for a tub in some cases. If the ground on the site is compact and stable soil, sand, gravel or rock; a layer of pea gravel (or course sand) on top can be used to establish a level foundation for your tub. However, if the soil is unstable, soft, duffy or muskeg, a gravel pad will settle unevenly under the weight of the tub and is not a good choice. If you choose a gravel pad, make it larger than the diameter of the tub by about 3 feet. Example: For a 6' tub, make the pad 9' in diameter. The thickness can vary depending on how much gravel is needed to level the site. Typically, 2 to 4 inches is sufficient. Smooth with a rake and check with a carpenter's level.

3.3 Another alternative is to use adjustable concrete pier blocks as a foundation. This type of pier block is available at most home improvement stores and allows you to adjust the level of the tub after it is in place. Piers can be set into the ground to make a solid foundation for the tub. This method involves building a small but strong wooden frame or cribbing to support your tub. Typically, four piers should be used, and the wood timbers should be 4" x 6" or bigger. The bottom of the piers must rest on stable material. See Figure 3.3 for an example.

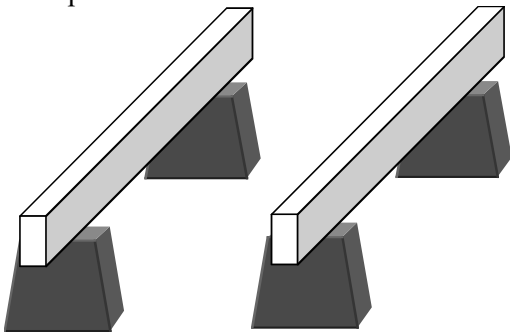


Figure 3.3 Pier block foundation

3.4 Another option is to install the tub on a deck. Installation on a wooden deck can be a good choice. Be sure that your deck has been designed to support the weight of a full tub (1500 - 8000 lbs. depending on the size of the tub). Have the deck inspected by a qualified architect or building engineer prior to proceeding. See Figures 3.4 for deck installation.

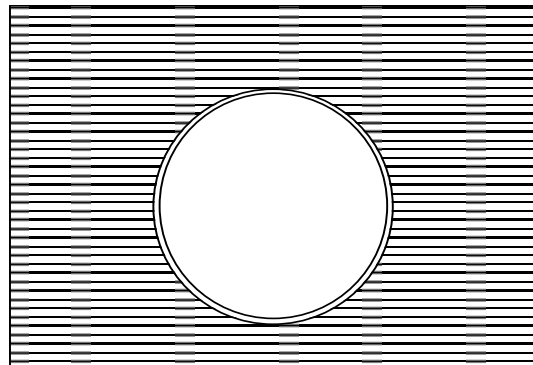


Figure 3.4.1 Tub surrounded by deck or on top of deck. If surrounded by a deck, the deck can hide the heating system plumbing. If on top of deck, the beauty of the tub can be better appreciated.

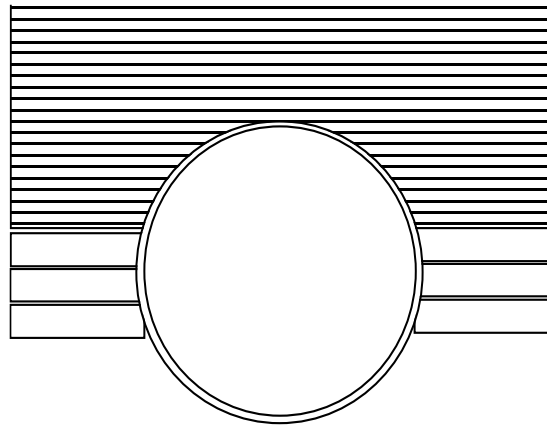


Figure 3.4.2 Tub on perimeter of deck with stairs on each side. This arrangement allows for plumbing to be hidden under the deck and for most of the tub to be seen. Good choice for any heating system.

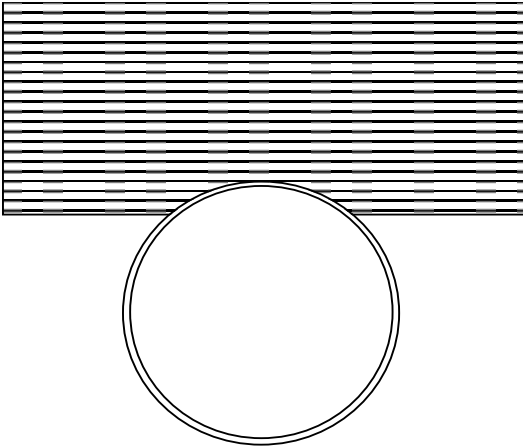


Figure 3.4.3 Tub on perimeter of deck with small cutout. This design allows easy access to the tub from the deck while allowing the heater to be away from the deck with proper ventilation.

Regardless of the type of foundation you choose, make sure it is level before proceeding.

NOTE: During assembly, you will need about 3 feet of space all around the tub for the tightening process. If necessary, assemble the tub a few feet away from its final position, then lift, slide or lower it into position (with enough helpers!)

Section 4: Tub Supports - Chine Joists

Time needed: Approximately 40 minutes

Important! Choose a **dry day** to assemble your tub. The floor of your tub is supported by chine joists (not included.) The recommended dimension is 4" x 6". Refer to Figure 4.1 for the proper number and length of the chine joists for your size tub.

Tub size, shape	# of joists	Joist lengths (inches)
4' circle	3	30, 43, 30
5' circle	4	33, 48, 48, 33
6' circle	4	34, 62, 62, 34
7' circle	5	48, 72, 78, 72, 48
8' circle	5	52, 78, 90, 78, 52
4' ellipse	3	20, 40, 20
5' ellipse	3	30, 52, 30
6' ellipse	4	34, 62, 62, 34
7' ellipse	4	42, 72, 72, 42
8' ellipse	4	48, 80, 80, 48

Figure 4.1 Chine joist specifications - Note: lengths are approximate

The chine joists must be 4x6 or larger. Pressure treated lumber is recommended because it will not decay. The joists will be placed with the 6" side vertical to get the proper 6" height of the supports.

Prepare the chine joists by cutting them to the proper length. The tub floor will sit directly on these. This allows air space under the tub and allows the drain enough clearance to pass under the staves. The weight of the tub must be borne on the floor of the tub which is supported on the timbers. The staves do not bear the weight of the tub!



Figure 4.2 Level the chine joists

Once again: **DO NOT SUPPORT THE WEIGHT OF THE TUB ON THE BOTTOM OF THE STAVES.** The flat floor of the tub should be directly on the timbers. Use your level to get the joists level in all directions (Figure 4.2.) Chine joists must run perpendicular (at right angle to) the floor seam. See Figure 4.3 for the proper position. Take care that they do not interfere with the preferred position of the floor drain. If necessary move the chine joists slightly. It is not necessary to glue or nail the chine joists in place. NOTE: Chine joists spacing is about 12"-16" apart. Adjust as necessary.

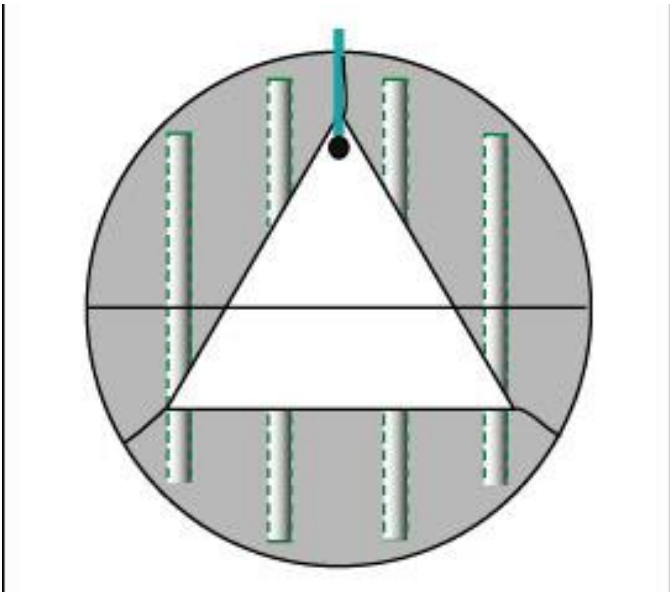


Figure 4.3 Typical placement and orientation of support timbers, drain, benches and floor seam (benches shaded grey)

Section 5: Floor and Drain Assembly

Time needed: approximately 20 minutes

Install the floor drain and drain hose at this time in the recessed hole in one half of the floor. The recess is in the topside of the floor. Put a medium sized bead of silicone around the corner of the recessed hole, and a small amount on the threads of the drain (Figure 5.1.) Slip the drain in place with the rubber gasket on the top side (inside the tub) and tighten the large nut underneath hand tight. Finish with 1/2 turn with a pipe wrench - do not over tighten! Next, thread the drain pipe (about 18" long) with elbow attached into the drain fitting.

Make sure this drain pipe is extending beyond the perimeter of the tub for easy access. Install the rubber drain plug inside the tub - hand tighten. Tip: you can attach a garden hose fitting to the end of the drain hose so that a standard garden hose can be used to direct the drained water to the desired location. Water from your tub is safe for watering lawns or other landscape plants. Do not use on vegetables.

Place the long 1/16 x 3/4 inch stainless steel spline in the slot on the edge of one half of the floor (this may have been done in advance by us.) Tap the spline with the mallet so that it goes in about halfway. Place a thin 1/8"

bead of silicone in the corner on each side of this spline. Insert the two dowels in the pre-cut dowel holes below the spline. The sole purpose of the dowels is to keep the floor panels aligned.



Figure 5.1 Drain assembly and silicone bead being applied to the recessed hole.

Place the two halves of the floor on the timbers with the BEVEL SIDE DOWN, nicely sanded side up, so the floor seam runs perpendicular to (right angle to) the chine joists.

Check that the drain is placed properly and that the joists do not interfere with it. At this time consider the placement of the benches as well - making sure that the drain will not be underneath a bench where it will be hard to access. See Figure 4.3 for the relationship between the drain, benches and floor. Make adjustments now as needed.

Be sure that the mating edges of the floor are clean and free of debris. Make sure you have a consistent bead (1/8" inch diameter) of silicone on each of the mating edges of the floor seam before assembly.



Figure 5.2 Floor seam, dowels and silicone

Align the floor panels and use a mallet to tap them together so spline and dowels line up and the seam is as tight as possible. If you have access to a long enough pipe clamp(s) you can use it to squeeze the panels together. A small gap between the panels is acceptable and will swell shut when water is introduced.

Use the two small pieces of scrap plywood provided as temporary floor braces and lay them across the floor seam several inches from each side of the tub. Temporarily screw them directly to the top of floor with the four short screws provided. (Figure 5.3) This will help keep the center seam from opening up during assembly. They will be removed in a later step after the tub is assembled. Failure to use these braces will cause problems during assembly. The small holes caused by the screws will swell closed later.

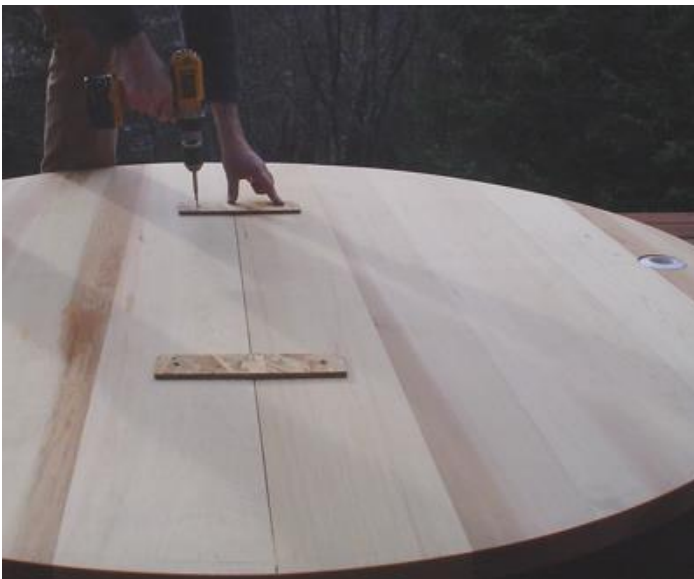


Figure 5.3 Temporary floor braces

Now check that the floor is level and oriented as you want it. Also check that the ends of the chine joists are at least 2 inches inside the edge of the tub floor (inside of the bevel) so that they will not interfere with the placement of staves. You may want the floor to have a slight tilt toward the drain (1/4"). This can be accomplished by shims or gravel UNDERNEATH the chine joists - i.e. between the ground and the joists. This way the tub floor is still fully supported. Take your time with this step - the goal is a tub floor that is stable and level. Once the floor is level and stable, go on to section 6.

Section 6: Staves

Time needed: approximately 45 minutes

The staves are the vertical wood parts that make up the sides of the tub. Sort through the set of staves and separate out the special staves (carvings, heater holes, etc.) and set them aside. Now is the time to plan where you want them placed on your tub. For example, place the suction and jets where they work best for your installation. Review the instructions for the type of heating system for your tub for more details before continuing.

Your packing list shows the correct number of staves for your tub. Count the staves now and make sure you have the correct number. In some cases, we include a SPARE staff, which is not to be used unless it is necessary to replace one that is damaged. (Call us first)

Choose a staff and place it so that it straddles the seam between floor sections (Figure 6.1). The dado (groove cut across the inside of the staff) fits over the edge of the floor. With the rubber mallet, give the staff a **light tap** on the outside about 4 inches from the bottom, directly over the dado. The staff should then stand on its own from the friction of the tapered joint. *The amount of force to use at this point is minimal* - just enough to get the staff to bite the floor enough to stand on its own. Don't worry - you'll get to hit them harder soon!

Notice that a pencil line has been scribed about 3/4 inch from the edge of the top of the tub floor. Use this as a reference line to judge if the staves are seated evenly as you progress. At this point the staves will not reach the reference line. That is normal.

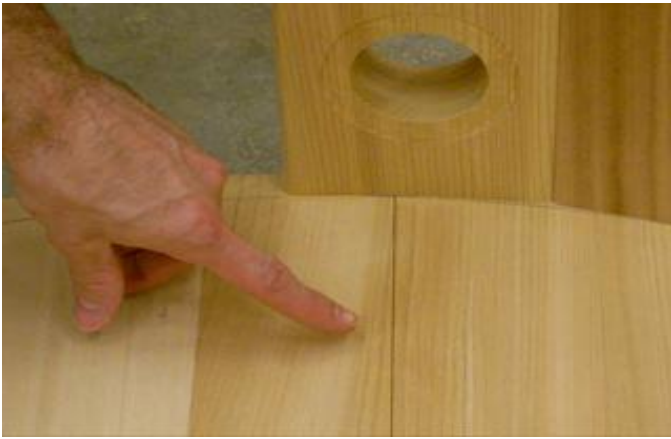


Figure 6.1 First stave straddles floor seam (4' ellipse tub has one piece floor and no floor seam, all others do).

AS YOU PROCEED - Check the edges of each stave and remove any dirt or wood particles that could interfere with a good seal.

VERY IMPORTANT! Use of the small mirror included in the kit: A reflective mirror approximately 4" x 10" is used to see what is going on the bottom of the staves. The mirror may have a protective plastic sheet over the reflective surface – Peel this layer off. Place the mirror on the ground directly under the staves you are adding. Use it to observe how tight and consistent the gap is between staves. Use the mirror and mallet to adjust this gap to keep it tight and consistent as you proceed.

Now work clockwise (to your left) and add a second stave next to the first. **DO NOT** put silicone between the staves. Use the mallet to gently tap the new stave first sideways - mating the ball and socket - until snug with the first stave inside and out, then tap it inward gently until it stays in place on its own. Tap the staves only on the ball edge, NOT the socket edge which is more fragile and could be damaged by the mallet. Add a third stave the same way - always snug them tight sideways first, then inward. It is not necessary to use much force at this time. It is important to keep the staves tight sideways - however a few small gaps (of 1/32 to 1/16") are okay for now. This is an important step so take your time. See Figure 6.2.

Work your way around the tub adding staves. The staves will stay upright by friction from the bottom joint and from the support given by the ball and socket design.



Figure 6.1.1 Mirror allows you to see the bottom of the staves. USE IT!

After each set of about five staves is added, go back and tap the previous staves inward to keep them from bulging outward. Use the mallet to go back and lightly tap the previous staves inward as they may loosen as you add new ones. Use the scribed line to keep track of how things are aligned. Small gaps at this point are okay (1/32 - 1/16 inch.) Use the mirror to constantly check for consistency on the joints.



Figure 6.2 Adding staves

As you reach the places where the special staves go (heating holes for example) add them in.

The other spot that needs special attention is the opposite end of the floor seam. You must avoid having the floor seam line up directly with a seam between staves. If it works out that way, sort through the staves and find a couple of narrower or wider staves to solve the problem. If necessary, start over and shift the first stave over to

correct the problem. Arrange so the floor seam and stave seam are a minimum of 3/4 inch apart. This is very important! See Figure 6.3.

Keep an eye on the floor seam in the process of installing staves. It should stay closed. If it spreads a bit - rap the opposing sides of the floor with your mallet. Make sure that the plywood brace is in place and doing its job.

Take your time and work your way around the tub adding staves until you get back near the starting point. Stop periodically to tap inward any staves that have loosened in the process of adding others. Check the pencil reference line to judge how you are doing. Use the mirror to check for consistent tight joints or minimal gap (less than 1/16"). The set of staves were custom cut to fit your particular tub, so the last stave will fit right in if you have been careful to keep the staves tight.

If the last stave seems a loose fit, first make sure that you did not leave one out. Your packing list shows the correct number of staves for your tub. Count the staves and make sure you have the correct number. It is okay for the last stave to be a loose fit, HOWEVER, will need to distribute that excess space (gap) around the tub by adjusting the position of the staves. Use the mirror and mallet to work the staves sideways so that the excess is distributed among several small gaps of 1/32 to 1/16th inch or less. In other words, we want several tiny gaps instead of one or two large ones. These will be taken care of when the tub is tightened.



Figure 6.3 Make sure that the floor seam is straddled by stave

If the last stave seems too big, this is also a normal condition that can occur if the staves have been driven inward prematurely or there is more accumulated gap between staves than we want.

Step 1: Close up any noticeable gaps between staves to make more room. Do this by using the mallet on the

inside and your hand on the outside to tap the staves sideways. Driving them inward only makes the circle smaller and compounds the problem. Use your mirror to find larger gaps and adjust as needed. It may seem counter-intuitive, but loosen the staves by lightly tapping out from inside first, then snug them together sideways to close excess gap. Check all around the tub with the mirror and fix any problem areas. Now see if your last stave fits in. Repeat if necessary. Your tub kit was custom fit in our shop checked for proper fit before shipment.

If this does not solve the problem, do not force things, instead stop and give us a call for assistance 888 810 7717.

Section 7: Compression Straps

Time needed: approximately 15 minutes

Once all the staves are in place you are ready for the bottom compression strap. Locate the stainless steel compression straps. They supply the external support needed to tighten and support the tub. Refer to table below for the proper number of straps for your tub.

Tub Shape, Size	Tub Heights	# of Straps
4' Circle	28 36 42	2, 2, 3
5' Circle	28 36 42	2, 3, 3
6' Circle	28 36 42	3, 3, 4
7' Circle	28 36 42	3, 4, 5
8' Circle	28 36 42	4, 5, 5
4' Ellipse	28 36 42	2, 2, 3
5' Ellipse	28 36 42	2, 3, 3
6' Ellipse	28 36 42	3, 3, 4
7' Ellipse	28 36 42	3, 4, 4
8' Ellipse	28 36 42	4, 5, 5

Locate the large 8" x 5/8" bolts for the clamps. Remove the nuts. We strongly recommend putting a little grease, Vaseline, or never-seeze on the nut threads so they will not corrode in the future. With your helper, fit the first strap around the tub at 4.75 inches measured from the bottom of the staves to the top of the compression strap. *This measurement is crucial so that pressure is applied directly over the floor.* The fit may be tight, but you will be able to pull the ends close enough to slip the bolt in place and get the nut started. See Figure 7.1. Use your 15/16" socket wrench to take up a little slack so the strap will stay in place - only a few turns.



Figure 7.1 first compression strap loosely in place.

Now install the other straps and position as shown in Figure 7.2. The position of each bolt clamp should be staggered. Also, the bolt clamp should straddle a seam between staves.

Alternative strap technique: Loosen bolt almost all the way, but leave attached – maximizing the diameter. You should be able to drop the strap over the top of the tub and into position.

The bottom strap should always be at 4 3/4 inches from the bottom, measured from the bottom of the stave to the top of the band. Use your wrench to slightly tighten each band enough so they hold their position. Go around the tub with a tape measure and check the height of each band and make sure they look level, moving them up or down as needed.



Figure 7.2 Proper placements of straps and bolts. Note how bolts straddle a seam between staves and are staggered.

Tub Height	# of Straps	Measurements from bottom (inches)
28	2	4.75, 24
28	3	4.75, 14, 24
28	4	4.75, 11, 17.5, 24
36	2	4.75, 30
36	3	4.75, 17.75, 30
36	4	4.75, 13, 21.5, 30
36	5	4.75, 11, 17, 23.5, 30
42	3	4.75, 20, 36
42	4	4.75, 15, 25, 36
42	5	4.75, 12, 20, 28, 36

Heights of compression straps measured from bottom of stave to top of strap.

Section 8: Tightening

Time needed: approximately 30 minutes

This step is best done with two people, however it can be done with one.

VERY VERY Important! Look under the tub rim (with mirror) and confirm that any gaps between staves are evenly distributed around the circumference of the tub. Gaps larger than 1/16 inch should be addressed. The goal at this point is to have any gaps between the bottom of staves be no more than 1/16" AND distributed evenly around the tub circumference. NOT all in one section. If necessary, use your mallet to strike the staves from the INSIDE OUT using a glancing blow to adjust the gaps around the perimeter of the tub to achieve this even distribution.

Now you can tighten each strap a little at a time - starting with the bottom one. Tighten the staves incrementally in stages - bottom first, then upper(s); this will be repeated several times. One person will be tightening the bolt clamp as the other person uses the rubber mallet and starts on the side opposite the bolts, rapping each stave with moderate force just above the lower strap where the staves and floor join, driving them inward. Constantly monitor with the mirror to confirm that the joints are getting tight.

Always start opposite the bolts and do one half of the tub, then the other. Have your helper take up the slack in the bands by tightening the bolts as you do this. The staves should be driven in slowly. The object is to set the staves evenly around the tub. Work from the opposite side toward the bolts in one direction, then from the opposite

side toward the bolts in the other direction. In this way the tub is tightened evenly.

Work around the tub, hitting each stave with a firm rap right on the bottom strap. You will see each stave seat a little tighter. After one round of tightening the bottom strap, stop and take up slack in the upper strap(s) so they stay in position. **Note: do not over tighten the upper straps; they do not require as much tension as the bottom one.**



Figure 8.1 Hitting staves directly on the strap.

Double check the vertical placement of the straps now before things get too tight. It is easier to move the straps now. Use a tape measure to adjust the straps so they are placed as shown in Figure 7-2 and Table. Step back and make sure that the straps look level. Adjust as needed.

Now do another round of rapping with the mallet while tightening the bottom bolt. Use the mirror continuously to monitor any gaps as you go. This time hitting each stave a little harder - a good full swing on each one as your helper tightens the bolts. Alternate tightening each strap a little bit, so that you can keep the tension on the upper straps less than the bottom one.



Figure 8.2 Using pliers to resist as you tighten. Stop when you see noticeable deflection of the aluminum blocks. This indicates bottom strap is tight enough. Upper straps should not be as tight.

Turn your attention to the tops of the staves. They should be lined up nicely giving a smooth interior. If any need alignment, use the mallet to hit them inward or outward to bring them into adjustment. Do another revolution of hitting each stave a little harder now as the bottom strap is tightened. Don't be afraid to hit pretty hard. Continue tightening with wrench. At this point using the mirror, any gaps should be virtually gone. If not, stop, back up a few steps – loosen the straps a bit and distribute the gap as described earlier.

Now do a final tightening - but don't overdo it. The bottom strap is pressing against the floor on the inside, so it will reach a point where you can tell it is tight - don't force it beyond that. Use vise grip pliers to clamp onto the aluminum block that the bolt passes through to keep it from twisting as you do the final tightening. *Stop when you see noticeable deflection of the aluminum blocks. This indicates bottom strap is tight enough.* The upper straps don't need to be as tight as the bottom. If it feels tight, it is. Do a final adjustment on the top of the staves at this time. Remember - the wood will swell to tighten all joints further once water is introduced.

TIP: If you have a torque wrench – the bottom strap should be tightened to about 40 lbs. of torque (similar to a lug nut on a vehicle), the upper ones to a lesser amount - about 25 lbs. of torque.

Next climb inside the tub and remove the temporary floor braces. With a tube of clear silicone caulk, place a very small (1/4") neat bead all around the inside corner where the floor and the staves meet. Use your finger or a rounded piece of wood like a tongue depressor to smooth the bead. Also put a very small bead on the top of the floor seam. The purpose of the silicone is to slow the

initial seepage from the dry tub - allowing the wood to absorb more water and swell more quickly. Your tub will hold water as a result of the expansion of the wood, causing the joints to compress.

Your tub is now ready for installation of the heating system and any other accessories.

Section 9: Accessories

Install any accessories **in this order**:

1. Heating system - see separate instructions for your type of heater
2. Benches - see below
3. Tub Shelf
4. Access Steps - see below
5. Cover - see below

Benches:

The bench system is simple. These instructions are specifically for circular tubs. The elliptical tub benches fit at opposite ends, and the larger ellipse tubs (6 or 7 foot) have one or two side benches respectively. Each bench is one section of the circle. See the table below for the arrangement of benches for your size tub.

Tub Diameter (feet)	Number of benches	Bench arrangement
4 round	1	One end
5 round	3	Full circle
6 round	3	Full circle
7 round	4	Full circle
8 round	4	Full circle
4 ellipse	1	One end
5 ellipse	2	Opposite ends
6 ellipse	3	Opposite ends, one side
7 ellipse	4	Opposite ends, two sides



Figure 9.2 Aligning and attaching bench blocks – DO NOT drive a screw into a seam between staves! This will cause a leak.

A bench is typically held in place with four blocks, which act as legs, which are screwed directly to the inside of the staves with the included 3” stainless screws. The bench is then screwed down to the top of those four blocks with 3” deck screws. Place the blocks so you can screw down through the bench frame between the slats and into the top of the blocks. Place the benches so the drain is accessible. See Figure 4.3 for typical orientation of benches and drain. See Figure 9.2 for the installation of bench blocks.

By trial and error, place the bench blocks vertically like legs against the inside of the tub, so that they line up between the bench slats allowing a screw to be driven between the slats, through the bench frame on the underside of the bench and into the top of the bench support blocks.

Once the proper location for all blocks is determined, remove the benches; attach bench blocks to the side of the tub with 3” screws. **IMPORTANT: Do not drive a screw into the seam between two staves! This will cause a leak.**

Finally attach the benches to the blocks by driving 3” screws between the bench slats into the top of the bench blocks. See Figures 9.3 and 9.4.



Figure 9.3 Attach benches to bench blocks with 3" stainless screws between the bench slats into the tops of the bench blocks



Figure 9.4 Benches installed

Steps:

If you purchased steps from us, they are intended to be placed next to the tub and should be held in place with two stainless screws. Drive the screws through the steps and right into the side of the tub to provide stability. Alternatively, you can build a set of steps that work best for your site design.

Cover:

The vinyl and foam cover is the main insulation for your tub. It should provide years of good service. Avoid punctures or tears, which could allow water to get inside the cover. If you live in a high wind area, you will need to secure the cover so it doesn't blow off. This can be done by using the attached hold-down straps or by other means. To use the hold-down straps, let each hang down along the outside of the tub. Use a pencil and mark the bottom of each buckle on the side of the tub. Next separate the buckle (two parts) and screw the bottom part to the side of the tub at your mark with small (1") stainless steel screws (included).



Cover security: Included with the cover is a small plastic "key" that can be used to lock the strap buckles for security. Please note that this is not intended to prevent someone from getting in the tub. To prevent children or others from getting in the tub you will need to install the tub in a secure area.

Section 10: Finishing the Exterior of your Tub

We highly recommend that you protect your tub from the long-term effects of sun, wind and weather, by applying oil to the exterior and top rim of the tub. This will preserve the beauty of cedar. You can prolong the beautiful color of the tub by treating the outside only (never the inside) with a coat of teak oil.

We recommend a product used on the decks of wood boats called Dalys Teak Oil. Teak oil can be found at general hardware store, marine supply shop, etc. An alternative is a 50:50 mixture of mineral oil and turpentine or mineral spirits. Mineral oil is readily available in drug and grocery stores. Apply when the tub is dry with a brush, roller, or rag and allow to soak in. Do this annually to maintain the beauty of the cedar. Take care not to get any oil inside the tub. Repeat this treatment once per year or as needed.

Finally, apply a generous coat of plain soft furniture wax to the top rim (end grain) of the tub. This will act to seal the exposed end grain on the staves – and prolong the life of the tub. Repeat the wax treatment on the end grain once per year.

Note: Oiling and waxing the tub is particularly important in dry climates.

Section 11: Adding Water

A new wooden tub is like a new wooden boat. It will leak until the wood swells and the tub conditions and becomes tight. Be prepared for a few leaks. These will slow and stop as the wood swells. Some tubs will hold water quickly while others may take much longer. Your tub will continue to swell and tighten for several days.

Once your tub is completely assembled, with the heater plumbed and the benches installed, you can begin the process of adding water. Here's how:

First, install the rubber stopper in the drain plug, hand tight.

DO NOT simply fill the tub to the top right away. It is better to fill the tub more slowly in stages.

Use a garden hose to begin filling the tub slowly. Start by putting about 6" of water in the tub. Stop there and let it soak for at least an hour. Observe how the tub is holding water.

If the first 6 inches of water is leaking a lot, simply refill to the 6 inch level. If the tub is holding water well, add additional water to about the half full level and wait again for at least an hour. Follow this pattern of adding in stages and waiting – until the tub is holding water well.

If the tub has significant leaks, be very patient, stay the course. Add water occasionally to slowly bring the level up, a few inches at a time. **Don't try to tighten the compression straps or hit the staves with the mallet when the tub is full of water.** The leak rate will slow over time. As soon as the tub is holding water well, turn the water off and check it every few hours adding water as needed. The swelling process continues **for at least two weeks**. It is normal for a wood tub to drip a small amount of water.

If you have a limited water supply - use a slightly different approach. Put 2 to 4 inches in the bottom of the tub to swell and seal the bottom joint. After about 24 hours, slowly bring the level of water up. This way you can minimize the amount of water used to seal the tub.

Warm water accelerates the swelling of wood. If the tub is holding water well but you have a few persistent fast leaks, and your heater is set up, you can heat the tub and that will help swell the wood tighter.

Remember the swelling process continues **for about two weeks**. Give it time.

This is a good time to check all your plumbing and heating connections for leaks. Tighten or repair as needed. Double check that the drain plug is in place and not leaking.

Included with your tub is a bag of fine cedar sawdust. If you have a persisting leak after two weeks you can use this sawdust to seal the tub:

Important: remove the filter from the filter cartridge during this procedure, otherwise it will clog.

Add a cup or two of fine sawdust to the water. The wood flour will be naturally drawn to places where the water is seeping out and will help to stop or slow stubborn leaks. The sawdust is harmless and the excess will be flushed out the first time you drain and rinse the tub. Note: It may take more than one treatment to slow or fix the leak, but this method works in almost every case.

Tea-colored water: The natural oils and tannins in cedar (especially red cedar) will cause the water to turn tea-colored when the tub is new. This is normal and harmless. The sweet aroma of cedar is due to these oils. You may want to change the water frequently at first to help clarify the water. This effect will diminish slowly with time.

Section 12: Tub Safety

Your tub will give many years of enjoyment. Please note the following general safety points:

1. **Tub safety is your responsibility.**
2. **Never allow unsupervised children to use your tub. Be sure that a responsible adult is in control at all times. IT IS YOUR RESPONSIBILITY TO PREVENT ACCIDENTAL DROWNING.**
3. **Hot tubs are for sitting only. Do not allow diving or horseplay.**
4. **Children should use the tub at lower temperatures than adults, typically no more than 100 degrees. Consult your physician for advice on hot tubbing for children.**
5. **Pregnant women, people with heart conditions, high blood pressure or other health conditions must always consult with a physician before using a hot tub.**

6. **Consult your physician about their recommendations regarding your ability to soak and at what temperature. Never soak in water warmer than 104 degrees Fahrenheit.**

7. **To avoid risk of accidental drowning, never allow hot tubbing alone.**

8. **Do not consume alcohol in excess while hot tubbing.**

9. **It is important to keep the water in your tub clean by changing the water, replacing the filter, cleaning the tub, and using disinfecting and sanitizing chemicals.** Skin irritation is a sign of bacteria in the water. See the instructions on water quality. If you need to re-order supplies contact us.

Section 13: Tub Maintenance

Your tub should last for many years with a little maintenance. Here are a few recommendations.

Keep the tub filled whenever possible. Remember that a wooden tub is a dynamic object and the wood will swell and shrink with exposure to water or lack of it. Like a wooden boat, it will seep water at first, then swell shut. Leaving the tub empty for a few days for maintenance or cleaning is normal and fine. (keep the cover in place to minimize drying).

Leaving the tub unused for extended periods of time. If you need to leave the tub unused while on vacation or for other reasons, drain most of the water out leaving about 3 inches in the tub. Drain the heating system including any filters or pumps in the system. Secure the cover on the tub and wrap the tub with a tarp to protect it and prevent excessive drying.

Avoid leaving the tub dry for extended periods. It is fine to leave the tub empty for several days for maintenance. In general, you want to keep the tub wet as much as possible. This keeps the wood from drying out, shrinking and opening up the seams. If you need to drain the tub in cold weather or when you are away for an extended period, leave 2-3 inches of water in the bottom so the floor seam will not dry out. The tub will not be permanently damaged by drying out, but will have to swell again to hold water.

If the tub does dry out during vacation or winter closure: While empty, check to see if the compression straps can be tightened up a bit. Tighten the bottom strap first, then the upper ones. Do not over tighten the upper straps -

they do not get tightened as much as the bottom one. **NEVER** tighten the straps when the tub is full of water! Add water slowly and allow the tub to swell – see section on adding water.

Freezing. Never let the tub freeze solid when full of water!!!! Since water expands when frozen, this will put enormous strain on the bottom, sides, hardware, plumbing and heating system. If you are going to be away during freezing weather, or you want to shut your tub down during a cold snap, or for the entire winter, follow these steps:

1. Drain the tub leaving 2 or 3 inches in the bottom. This small amount of water will not cause freeze damage and will keep the floor seam tight.
2. Drain **ALL** parts of the heating system. This includes pump, filter, heater and pipes. Open the plumbing at union connections closest to the lowest point in the plumbing to help with this.
3. If practical, disconnect and store the heating system in a warm dry place.

Preserving the beauty of cedar. You can prolong the beautiful color of the tub by treating the outside only with a 50:50 mixture of mineral oil and turpentine or mineral spirits). An alternative is teak oil - a product that is usually available from marine suppliers. Apply when the tub is dry with a brush, roller, or rag and allow to soak in. Do this annually to maintain the beauty of the cedar. Take care not to get any inside the tub.

If your tub develops a significant leak. Follow these steps in order. If the first one doesn't work go on to the second and so on.

1. If your tub develops a leak (not just a drip) that it didn't have before, something has changed. Do some investigation to discover the cause. The most common causes are the tub drying out after being empty for a period of time, or the support for the tub has settled causing the tub to have an uneven base. Check for bench block screws that may be in seam between two staves.
2. If the tub has dried out from being left empty, check the compression straps for tightness. If the wood has dried enough to show signs of shrinkage, it is a good idea to take up the slack with the tightening bolts. **NEVER** tighten the straps when the tub is full of water! Tighten the bottom one primarily. The upper straps should not be

over tightened. Do not force them. Do not attempt to hit the staves with the mallet. This could cause additional problems.

3. Check the floor of the tub with a level and inspect the foundation and chine joists under the tub. If the foundation is uneven, the tub will need to be drained and moved, and the foundation problem fixed.

4. **Wood sawdust** is one of the simplest and most effective ways to stop leaks. This is a technique borrowed from wooden boat builders. The wood dust will find its way into the leak because of the water movement, and help to stop the leak.

Included with your tub was a small bag of fine wood sawdust. If you can't find it or need more, you may be able to find some locally at a woodshop or we can send some to you.

Important: remove the filter from the filter cartridge during this procedure, otherwise it will clog.

Add a cup or two of fine sawdust to the water. The wood flour will be naturally drawn to places where the water is seeping out and will help to stop or slow stubborn leaks. The sawdust is harmless and the excess will be flushed out the first time you drain and rinse the tub. Note: It may take more than one treatment to slow or fix the leak, but this method works in almost every case.

5. If the above solutions have not worked, drain the tub and allow to the inside to dry for a few hours. Apply a small amount of silicone to the leaking area on the inside of the tub, and around the inside corner where the floor meets the sides. The surface of the wood must be completely dry for the silicone to adhere.

If you need assistance, please contact us.

Section 14: Water Sanitation Instructions

It is important to keep the water clean. Failure to do so can cause growth of bacteria and possible skin irritation. Some people prefer not to use chemicals and simply change the water frequently - cleaning the tub between heavy uses.

As you care for your hot tub, keep in mind that a hot tub is not merely a small pool. Due to high water temperature and small amount of water, **4 people in a tub is equivalent to 300 people in a backyard pool.** For this reason, it is important to properly sanitize your tub.

Keeping the water clean and safe involves three things – your filter, the ozone system, and the included chemicals.

1. Fill the tub with fresh water.

2. **Important!** Test water to get pH in the 7.2 to 7.6 range (7.4 - 7.5 is ideal.)

3. Ozone system: If your tub has an ozone system, adjust it according to the specific instructions included with your heating system. The Ozone is added to the water only when the water pump is running.

4. Shock the tub water twice per week with two tablespoons of DiChlor Spa 56 supplied with your tub. Do NOT USE a different type of chlorine – the supplied product is formulated for wooden tubs. Other types of chlorine can do damage.

Other Important Water Sanitation and Safety Information:

- Never heat your tub water above 104 degrees - higher temperatures can cause health problems.
- Always shower before using tub.
- Always read the label instructions prior to using a product and use only as directed.
- Never add chemicals when people are in the tub.
- Store chemicals in a cool dry location out of direct sunlight.
- We recommend that you change tub water every 4 to 8 weeks.

Section 15: Warranty Information

Your tub has a limited warranty for two years against defects in material and workmanship. This warranty excludes damage caused by errors in assembly, normal wear and tear, and modifications made to the tub.

The cover has a manufacturers' limited warranty of four years.

Heating and pump equipment has a limited warranty of one year.

Zen Bathworks
888-810-7717 info@zenbathworks.com

Parts List: Please note, your tub kit may not include all of these items – depending on the options chosen for your tub. Note: color and style of some items may vary. Use photos to help identify your parts.



Suction



Jet



Union



Ball Valve 1 1/2"



1 1/2" "T"
1/2" "T"



Bushings



Filter Housing



Filter Base



Filter



Water Sanitation Kit



1.5", 1"
1/2" Elbows



1/2" Street Elbow (L) & 1/2"
Regular Elbow (R)



Shelf Kit



Thermometer



Cedar Flour



Temporary Floor Brace



Primer &
Glue



Mirror for seeing bottom of staves
during assembly



8" (L) & 4" (R) Bench Block



Floor Drain Assembly



Tub Light - Optional

