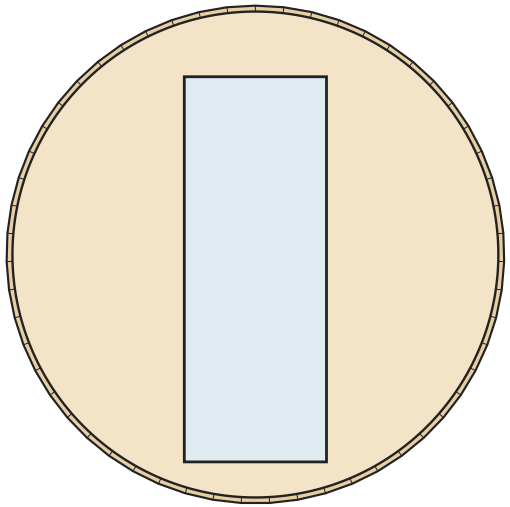
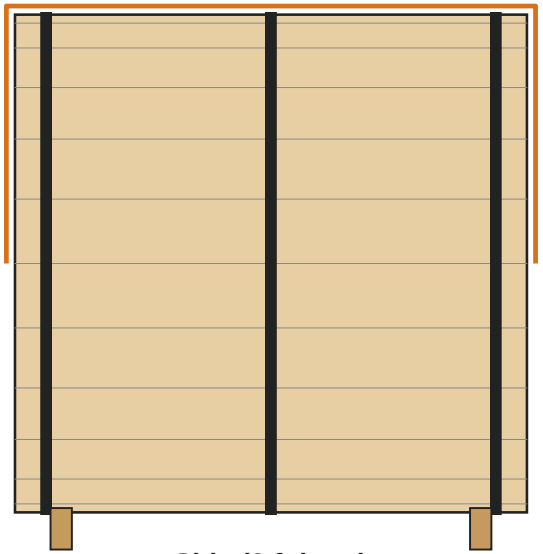
Barrel sauna plans: 7-foot diameter, 4, 6 or 8 feet long

Free plans from Sauna Marketplace. Staves from 2x6 stock, end walls in grooves, stainless band kits, two cradles, two bench levels. Read all six sheets before you buy lumber.



Front



Side (6 ft long)

Sizes in these plans

Length	Seats	Clear inside	Air, cu ft	x 1.5	Floor, sq ft	Bands
4'	2 people	37-3/4"	111	166	21	2
6'	4 people	61-3/4"	181	271	35	3
8'	6 people	85-3/4"	251	377	48	4

Outside diameter 84"; 77" floor to ceiling at the center, above the 75" minimum room height in Harvia's KIP manual (it lists 78" for Canada) and HUUM's DROP manual. Staves 1-1/2" thick, milled to 5-1/4" wide. Door opening 24" x 65".

"Air" is the room above a floor 4" up, between the end walls. x 1.5 is the adjustment Harvia (log walls) and Saunum (staves) give for uninsulated walls; HUUM uses the true volume. The heater is your choice: check its range against all three numbers (sheet 5).

Sheets

1. Overview (this sheet)
2. Staves: joint, grooves, stave count
3. End walls: door, vents, heater wall
4. Cradles, bands and roof
5. Inside: benches, heater, vents, electrical
6. Cut list, tools and build order

Before you cut. These plans are a free guide, not engineered drawings. Check every dimension against your own lumber, door and heater.

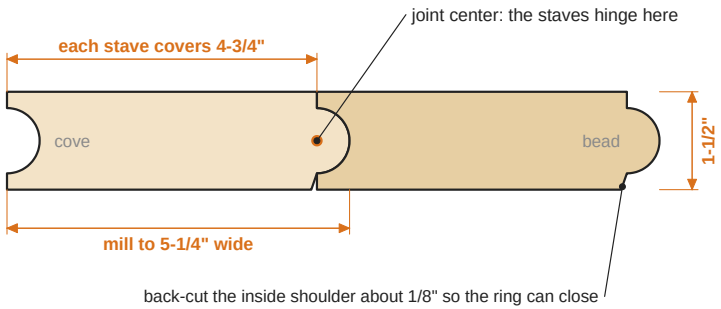
Your heater's manual sets its clearances, sensor spot, vents and minimum room size. A licensed electrician wires the heater. Ask your local building office about permits.

Want every number? The complete build set is 29 sheets: coded cut lists and cutting diagrams, a materials list priced line by line, every tool, the hours for each step, the door, bench and roof details, an Excel cost calculator and a 3D model. It is on Etsy: etsy.com/listing/4602925078

Staves

Bead-and-cove stave joint

Cross-section. Outside of the barrel is up. 1/2" radius bead and cove on 1-1/2" stock.



In a 7-foot barrel each joint hinges about 6.6 degrees; the bead rides in the cove and the outside seam opens slightly.

By diameter (1-1/2" stock, 4-3/4" per stave, 4" floor)

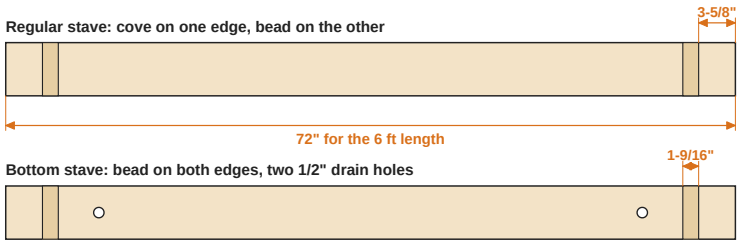
Outside diameter	Staves	Hinge per joint	Floor to ceiling	Clears 75"?	Door that fits
5'	38.7	9.3°	53"	no	24" x 38"
5' 6"	42.7	8.4°	59"	no	24" x 45"
6'	46.6	7.7°	65"	no	24" x 52"
6' 4"	49.3	7.3°	69"	no	24" x 56-1/2"
7'	54.6	6.6°	77"	yes	24" x 65"

Staves: π x (outside diameter − stave thickness) ÷ 4-3/4". Door: a 24" opening inside a 1-1/2" jamb, under a 2x4 header that reaches a full board past each side.

Milling order

1. Pick straight, dry 2x6s: 11% moisture or less (KIP manual). Home-center 2x6s are often near 19%; built that wet, a 7 ft ring shrinks about 5-1/2" around as it dries. Plane every stave to one thickness.
2. Joint and rip every stave to 5-1/4" wide. Identical width is what makes the ring close.
3. Rout the cove edge, then the bead edge, with the profile centered on the thickness. Take each profile in two passes.
4. Back-cut the inside shoulder of the bead edge about 1/8" so the joint can hinge 6.6 degrees.
5. Test-fit six staves on a curved template before you mill the rest.
6. Cut the end-wall grooves (the croze): 1-9/16" wide, 1/2" deep, starting 3-5/8" from each end. Gang-cut them with a dado stack and a stop block.
7. Bottom (drain) stave: a bead on **both** edges, so staves climb both sides from it. Bore two 1/2" drain holes, one under the heater and one inside the door.
8. Closing stave (top): a cove on **both** edges, about 3-3/16" wide. Rip it to the gap you actually have, then cove it. Mill two spare blanks.

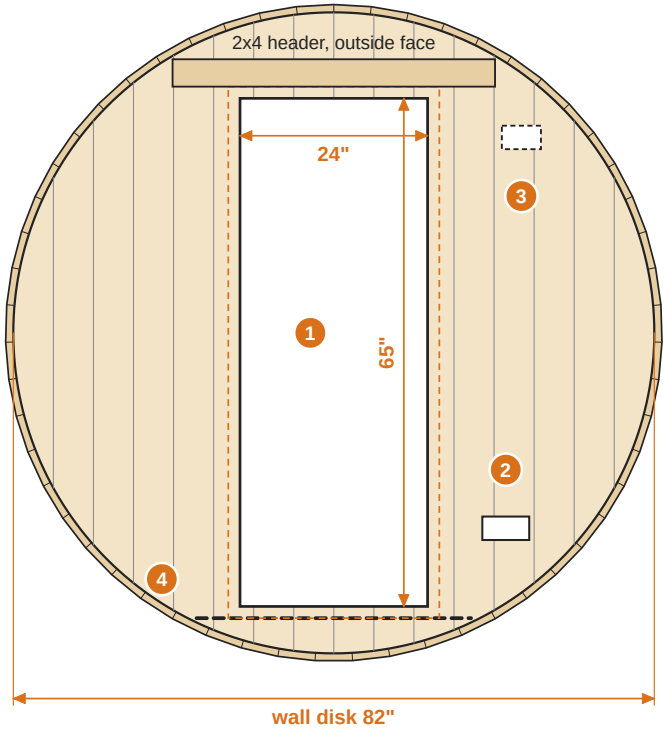
Routing is the long job. A 7 x 6 barrel has 55 staves (53 regular, the bottom stave and the closing stave), so 110 edges: about 660 linear feet of routing per pass, or about 1,320 feet with two passes on every profile.



Grooves (the croze) on every stave: 1-9/16" wide, 1/2" deep. Drain holes about 4" inside each groove.

End walls

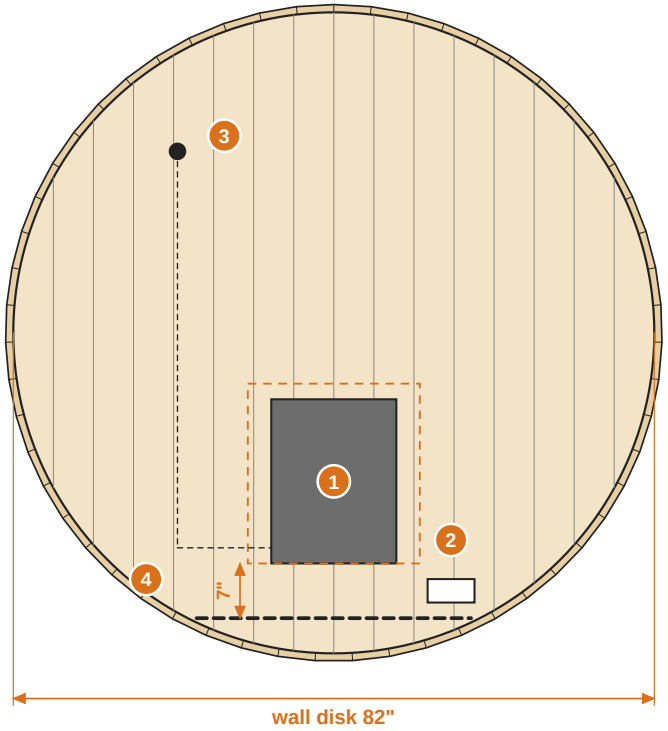
Front wall (inside face)



1. Door opening 24" x 65", inside a 1-1/2" jamb (dashed), under a 2x4 header
2. Exhaust vent, 10" to 12" off the floor (KIP manual)
3. Optional drying vent, closed while heating and bathing
4. Floor line, 4" above the bottom of the barrel

Build each wall flat. Lay 2x6 tongue-and-groove boards vertically, tongues all one way, over the 82" circle. Screw 1x4 cleats across the inside face, stopping 2" short of the edge so they clear the staves; on the front wall, keep them to either side of the door. Cut the circle with a router on a trammel, a hair large, and trim to fit the grooves.

Rear wall (inside face)



1. Heater and guard; KIP bottom 7" to 12" off the floor
2. Intake, about 2" off the floor, beside the heater, away from the sensor
3. Sensor: KIP manual, 12" below the ceiling and 12" beside the heater
4. Floor line, 4" above the bottom of the barrel

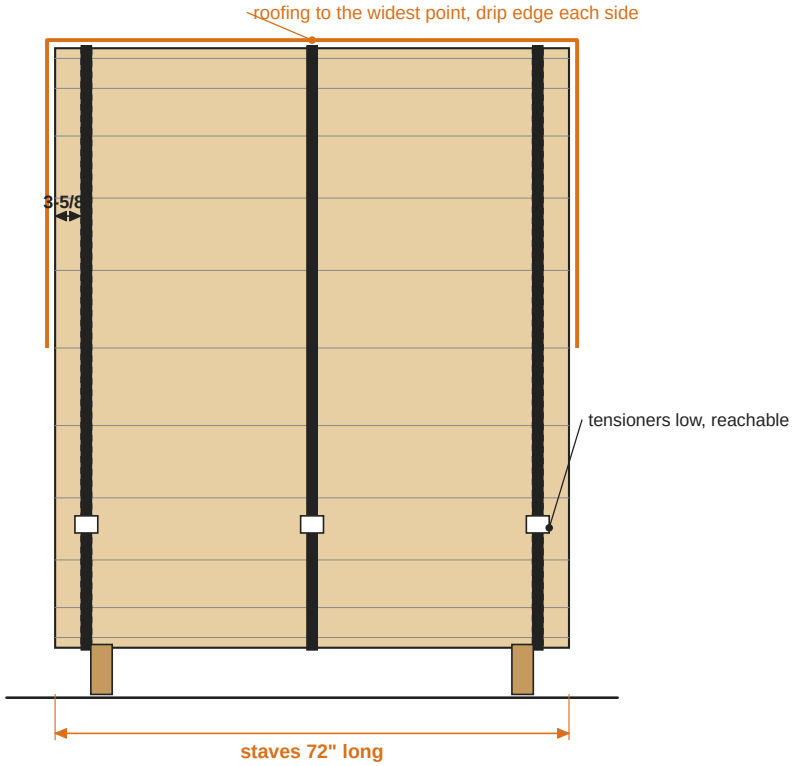
Door: the 24" x 65" opening is inside a 2x jamb, so the cut in the wall is 27" wide and runs from the floor line to 68" up (a 1-1/2" threshold at the bottom). Screw a 2x4 header flat across the outside face, right above the opening, reaching a full wall board past each side: it ties the boards above the door to the boards beside it, so the door doesn't rack when you tighten the bands. Hang the door after banding. It opens out and has no lock.

Vents: drawn to Harvia's current KIP manual. Other heaters differ (sheet 5); follow your heater's manual.

Cradles, bands and roof

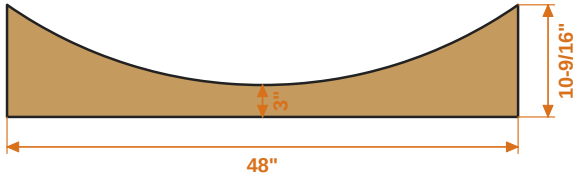
Side elevation, 6' long

Dashed: end walls in their grooves. Black: bands. Tan: cradles.



Cradle (make 2)

Arc radius 42", half the outside diameter. Two 2x12s, glued and screwed.



Bands

Two bands on a 4 ft barrel, three on 6 ft, four on 8 ft. Center the end bands over the end-wall grooves (4-3/8" from each end) and space the rest evenly. For the 6 ft barrel: 4-3/8", 36", 67-5/8" from one end.

Flat stainless band kits with bolt tensioners. Cable beds into the soft wood and slackens. Put the tensioners low on the sides, in the bottom third, so you can reach them after the roof is on. Tighten in rounds, a little at a time, while a helper taps the staves; stop while the door still swings. Re-tighten after the first heats, at a month, and every six months.

Base and cradles

Level, drained ground that can carry "1,000+ lbs" (Almost Heaven's barrel manual): compacted gravel with pavers under the cradles, a slab, or a deck. Keep air moving under the barrel. The staves overhang each cradle by about 5".

Fastening

Stainless screws only, and only on the lower half: screw the bottom staves to the cradles and the lower staves to the end walls through the groove area. Leave the top half free so the bands can draw the staves in.

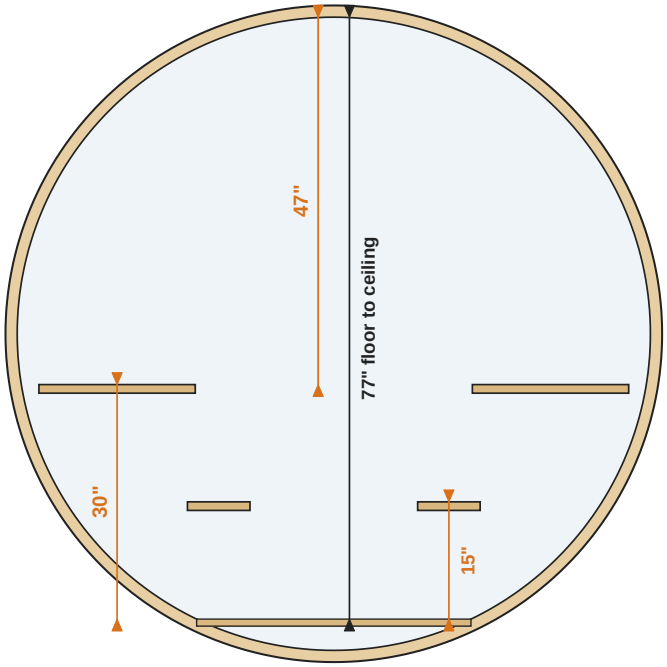
Roof

Cover the top half down to the widest point, with a drip edge and a kick strip each side: self-adhered membrane over the near-flat top, then shingles or metal, or a fitted cover. Roofing fastens into the top staves, so snug the bands evenly before it goes on. Outside wood gets water-based exterior stain only; oil and linseed wick through the joints.

Inside: benches, heater, vents and electrical

These plans: 7-foot barrel, two bench levels

Seats 30" and 15" up, measured to the seat surface; floor 4" above the bottom.



Upper bench to ceiling: 47" at the center. Harvia's Cilindro and Vega manuals recommend 47" at most; HUUM's installer training recommends 43" to 51".

Vents (from each maker's manual)

Heater	Intake	Exhaust	Also
Harvia KIP (current manual, 2023)	under or beside the heater, about 2" off the floor; 2" to 4" across	opposite wall, 10" to 12" off the floor, as far from the heater as you can; twice the intake size	optional drying vent, closed while heating and bathing; 5 to 6 air changes an hour
Harvia Cilindro and Vega (and the 2021 KIP manual)	about 4" off the floor by the heater	opposite wall, 6" below the ceiling or as low as 24" off the floor	5 air changes an hour
HUUM DROP and HIVE	at most 15-3/4" high	opposite wall, at most 23-5/8" off the floor, at least 7-7/8" above the intake	high drying vent kept closed; 6 an hour
Saunum Air	at most 12" off the floor	24" to 47" off the floor, far from the heater	about 4" intake, 6" to 8" exhaust; 6 an hour

Heater and electrical

- Room height: the KIP manual lists 75" minimum in the US (78" in Canada); HUUM's DROP manual lists 75". These plans give 77". The DROP manual also asks for 47-1/4" from the heater top to the ceiling.
- Clearances, mounting height and sensor spot come from your heater's manual. For a KIP: 3", 4" or 5" to walls (4.5, 6 or 8 kW); heater bottom 7" to 12" off the floor; thermostat bulb 12" below the ceiling and 12" beside the heater. Harvia's December 2024 KIP sensor sheet shows 6-3/4" below the ceiling, so use the sheet that comes with your heater.
- Circuit: 240 V. KIP manual: 18.8 A (4.5 kW) and 25 A (6 kW) on #10 copper, 33.3 A on #8 (8 kW); wire inside sauna walls rated 194°F.
- Heater size: check your heater's range against the true air, the air x 1.5 and the floor area on sheet 1, and pick a size that passes all three. Harvia KIP examples: 4.5 kW for 4 ft, 6 kW for 6 ft, 8 kW for 8 ft. The 8 kW is out of range in the 6 ft barrel: its floor is under the KIP-80's 40 sq ft minimum.
- GFCI: Harvia's manual says no GFI on the heater circuit, but NEC 2023 210.8(F) requires GFCI on outdoor circuits of 50 A or less. Your electrician, inspector and heater maker settle it before you buy.
- Seats: 5/4 x 4 aspen or alder sauna boards on frames 16" apart or closer, screwed from below. Foot benches stop 22-1/2" short of the heater wall. A 3/4" HDPE pad under every leg keeps end grain off the staves.

Cut list, tools and build order

6' long, 4 people

Item	What to buy	Notes
Staves	59 pieces 2x6, 72" long (two per 14 ft 2x6, leaves room to trim)	53 regular, 1 bottom, 1 closing, 4 spares
End walls	about 210 linear ft of 2x6 tongue and groove, 8 ft boards	two 82" disks plus 15% waste
Wall cleats	4 pieces 1x4, 72" long	inside face; cut to fit beside the door
Door	a barrel sauna door for a 24" x 65" opening, or build one; one 2x4 header	opens out, no lock
Cradles	2 pieces 2x12 x 48" per cradle (4 total)	ground-contact rated
Bands	3 flat stainless barrel band kits, about 22' 5-7/8" around	bolt tensioners, set low
Floor	2 sleepers 2x4 x 59-3/4", slats 1x4	removable duckboard
Benches	2 upper 60-3/4" x 20", 2 foot 38-3/4" x 8"	5/4 x 4 aspen or alder seats; HDPE pads under legs
Roofing	about 68 sq ft plus drip edge, 2 x 6' 4"	shingles on underlayment, or metal
Fasteners	stainless screws only	lower half of the barrel only
Heater	your choice, sized on sheet 5 (example: Harvia KIP 6 kW)	with guard, stones, controls
Vents	adjustable intake and exhaust, optional drying vent	sizes from your heater manual

4 ft barrel: 59 staves 48" long, 2 bands. 8 ft barrel: 59 staves 96" long, 4 bands. Walls, cradles and the door don't change; floor, benches and roofing scale with length.

The complete build set has the full cut lists for every length with cutting diagrams, the materials priced line by line, every tool, the hours, and an Excel cost calculator: **etsy.com/listing/4602925078**

Tools

- Router table, 2+ hp router, featherboards
- Bead and cove bits, 1/2" radius, 1/2" shank
- Table saw with a dado stack
- Jointer and planer, or a straight-line rip jig
- Trammel or jigsaw for the circles
- Rubber mallet, clamps, straps, level, square
- Drill-driver, socket set for the bands

Build order

1. Level the base; set and square the cradles.
2. Set the drain stave on the cradle centerline; screw it down.
3. Stand both end walls in the drain stave's grooves; brace them plumb with a temporary stave.
4. Add staves both sides at once, tapping each home with the mallet.
5. Fit the closing stave; band the barrel with the tensioners low and tighten the bands in rounds.
6. Roof it.
7. Floor, benches, door, vents, heater, electrician.
8. After the first firings, re-snug the bands; check them in the first months and as the seasons change.

Where these numbers come from

Band count by length and the "1,000+ lbs" base: Almost Heaven's barrel manual (2024). Door header, band kits and stain: our review of 39 build videos and 22 barrel makers' guides (2026). Groove about 3-5/8" in: Thermory's barrel guides (2026). Lower-half screws: SaunaLife's barrel manuals. Room height, room-volume and floor-area ranges, KIP vents, clearances, sensor spot and wiring: Harvia's KIP manual (2023) and KIP sensor sheet (2024). GFCI: NFPA 70 (2023), 210.8(F). Bench-to-ceiling maximum and the other Harvia vents: Harvia's Cilindro and Vega manuals. HUUM: DROP manual and installer training. The x 1.5 for staves: Saunum's Air manual. Stave counts, doors, air volumes and routing: our geometry.