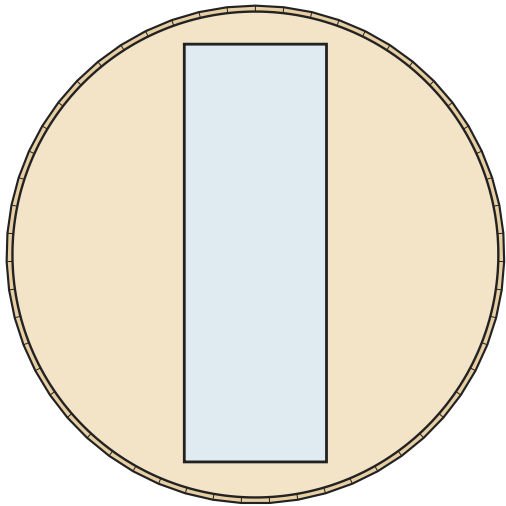
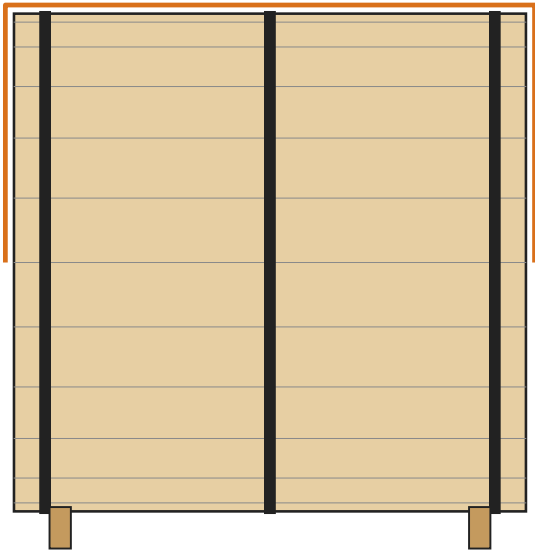


Barrel sauna plans: 7-foot diameter, 4, 6 or 8 feet long

Free plans from Sauna Marketplace. Staves from 2x6 stock, end walls in grooves, stainless bands, 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	Harvia KIP	Bands
4'	2 people	37-3/4"	111	166	4.5 kW	2
6'	4 people	61-3/4"	181	271	6 kW (8 in a cold climate)	3
8'	6 people	85-3/4"	251	377	8 kW	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 70-1/2".

"Air" is the room above a floor 4" up, between the end walls. x 1.5 is the adjustment Saunum's manual gives for uninsulated staves, which we apply to every barrel. The KIP column is the size whose room-volume range (KIP manual, Table 1) holds the adjusted volume.

Sheets

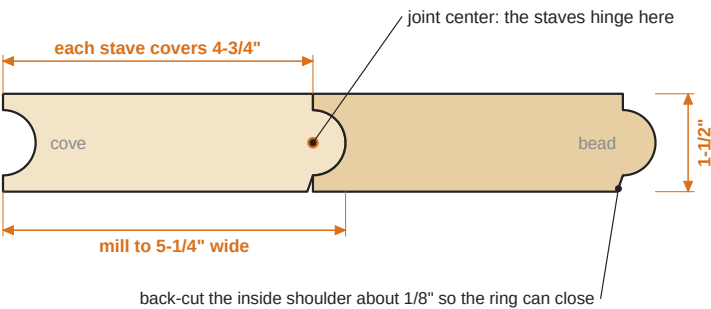
1. Overview (this sheet)
2. Staves: joint, grooves, stave count
3. End walls: door, vents, heater wall
4. Cradles, bands and roof
5. Inside: benches, heater, vents, electrical
6. Cut list, tools and build order

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.

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)

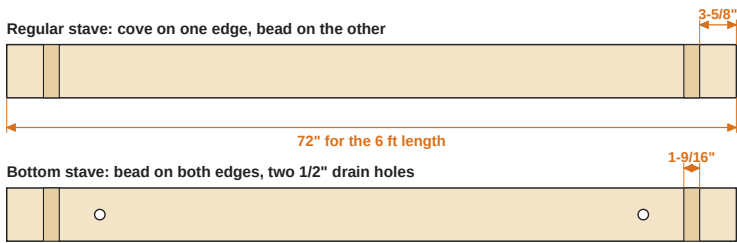
Outside diameter	Staves	Hinge per joint	Floor to ceiling	Clears 75"?	Door that fits
5'	38.7	9.3°	53"	no	24" x 45"
5' 6"	42.7	8.4°	59"	no	24" x 51-1/2"
6'	46.6	7.7°	65"	no	24" x 58"
6' 4"	49.3	7.3°	69"	no	24" x 62"
7'	54.6	6.6°	77"	yes	24" x 70-1/2"

Staves: $\pi \times (\text{outside diameter} - \text{stave thickness}) \div 4\text{'}/4$ ". Door: a 24" opening inside a 1-1/2" jamb, with 1-1/2" of wall left around the jamb corners.

Milling order

1. Pick straight, dry 2x6s; keep them as thick as you can.
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.

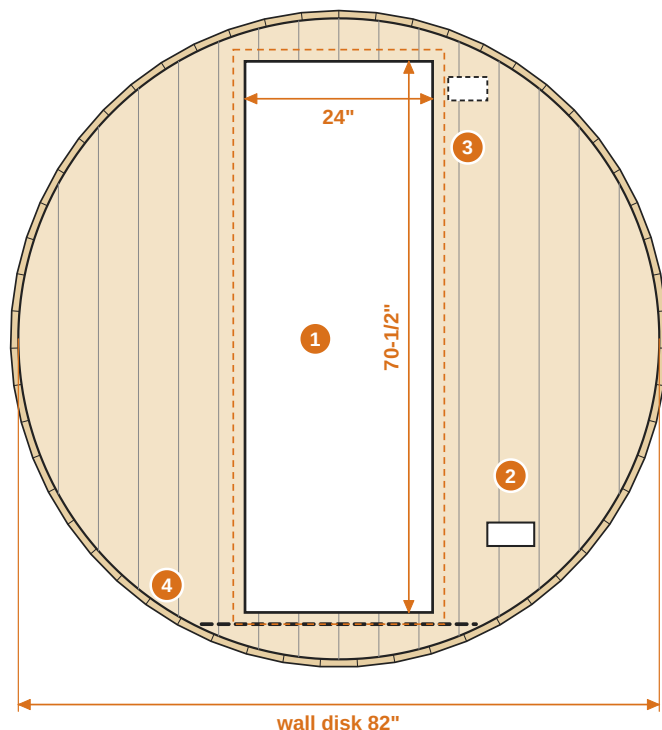
Routing is the long job. A 7 x 6 barrel has 55 staves (53 regular, the bottom stave and the closing stave), so 110 edges: about 660 linear feet of routing per pass, or about 1,320 feet with two passes on every profile.



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

End walls

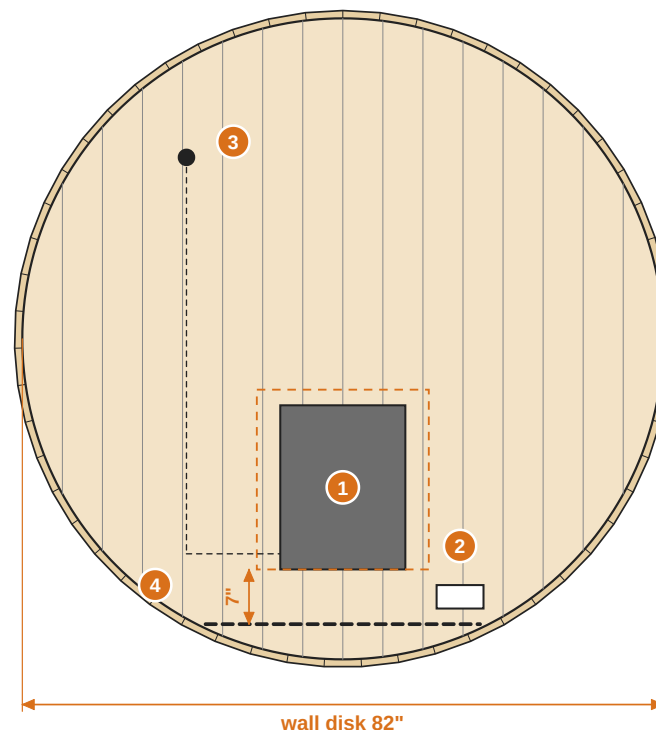
Front wall (inside face)



- 1 Door opening 24" x 70-1/2", inside a 1-1/2" jamb (dashed)
- 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

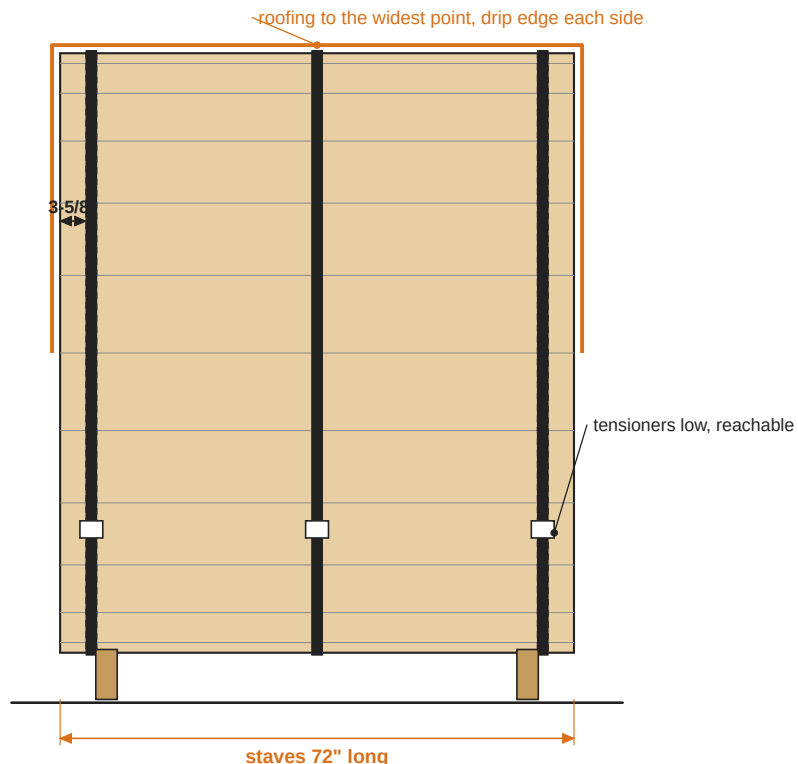
Door: the 24" x 70-1/2" opening is inside a 2x jamb, so the cut in the wall is 27" wide and runs from the floor line to 73-1/2" up (a 1-1/2" threshold at the bottom). Buy the door first and size the cut to its frame. It opens out and has no lock.

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.



Base and cradles

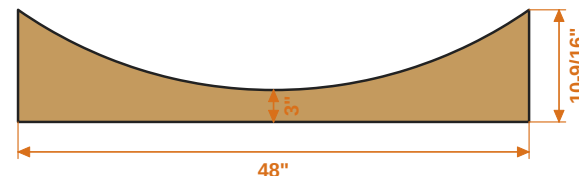
Level, drained ground that can carry "1,000+ lbs" (Almost Heaven's barrel manual): compacted gravel with pavers under the cradles, a slab, or a deck. Keep air moving under the barrel. The staves overhang each cradle by about 5".

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.

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.

Stainless steel: strap with bolt tensioners, or stainless cable with turnbuckles. Put the tensioners low on the sides, in the bottom third, so you can reach them after the roof is on. Snug them evenly, a little at a time.

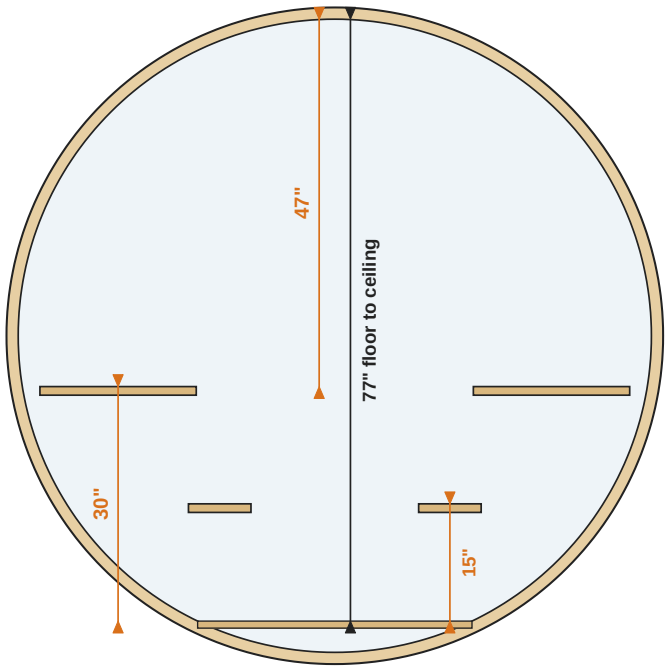
Roof

Cover the top half down to the widest point, with a drip edge each side: shingles over roofing underlayment, metal panels, or a fitted cover. Roofing fastens into the top staves, so snug the bands evenly before it goes on; with the tensioners low, you can still re-tighten them later.

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.
- GFCI: Harvia's manual says no GFI on the heater circuit, but newer electrical codes can require GFCI protection outdoors. Your electrician and inspector decide.
- Benches fasten from below, with as few knots as possible on the seat: knots get hot.

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 70-1/2" opening, or build one	opens out, no lock
Cradles	2 pieces 2x12 x 48" per cradle (4 total)	ground-contact rated
Bands	3 stainless bands or cables, about 22' 5-7/8" each	bolt tensioners or turnbuckles, set low
Floor	2 sleepers 2x4 x 59-3/4", slats 1x4	removable duckboard
Benches	2 upper 60-3/4" x 20", 2 foot 60-3/4" x 8"	aspen, alder or cedar, few knots
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	Harvia KIP 6 kW or equal (sheet 5)	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, KIP 4.5 kW. 8 ft barrel: 59 staves 96" long, 4 bands, KIP 8 kW. The 6 ft barrel's KIP: 6 kW (8 in a cold climate). Walls, cradles and the door don't change; floor, benches and roofing scale with length.

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 snug the bands evenly.
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). Groove about 3-5/8" in: Thermory's barrel guides (2026). Lower-half screws: SaunaLife's barrel manuals. Room height, room-volume ranges, KIP vents, clearances, sensor spot and wiring: Harvia's KIP manual (2023) and KIP sensor sheet (2024). 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.