Coffee table

Overall size: 48" W × 24" D × 18" H



Parts	Sheets and boards	Saw kerf	Units
12 (9 different)	**5**	**1/8"**	**Inches**

Materials to buy

Qty	Material	Label in plan	Board feet
1	8/4 Red Oak, 5-1/2" × 8'	Board A	7.3
4	4/4 Red Oak, 7-1/4" × 8'	Board B, Board C, Board D, Board E	19.3
10	Figure-8 desktop fasteners	Hardware	
1	Wipe-on poly: 1 quart (3 coats on 24.8 sq ft: 17 oz with 10% extra, 15 oz left over)	Finish	

Cost

In USD, at this project's prices

Qty	Item	Price	Per	Total
4	4/4 Red Oak, 7-1/4" × 8' (19.3 board feet)	$7.25	a board foot	$140.16
1	8/4 Red Oak, 5-1/2" × 8' (7.3 board feet)	$9.50	a board foot	$69.67
10	Figure-8 desktop fasteners	$0.45	each	$4.50
1	Wipe-on poly, quart (3 coats on 24.8 sq ft)	$24.00	a quart	$24.00
Wood				**$209.83**
Hardware				**$4.50**
Finish				**$24.00**
Total				**$238.33**
$129.12 of the wood and finish is offcuts, kerf and finish left over (55%), counted in Wood and Finish above.				

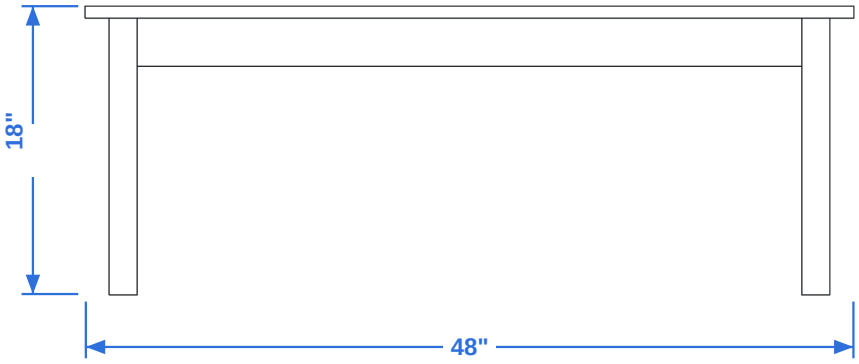
Views

Use the written dimensions; don't scale the drawing.

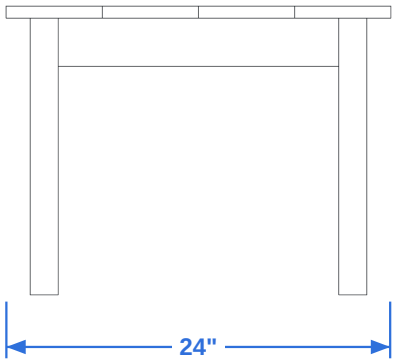
Top



Front

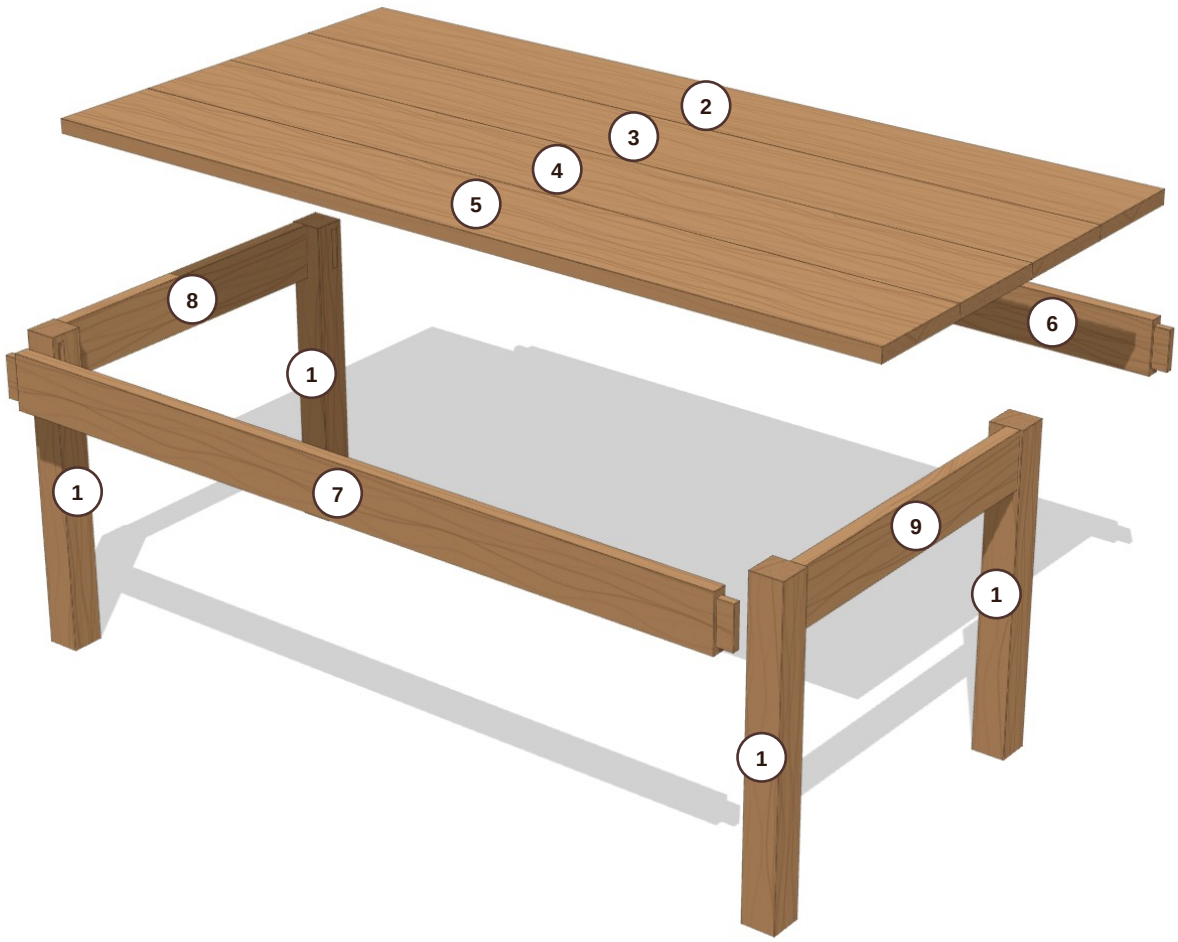


Right side



Exploded view

Every part by its number in the cut list



Cut list

Length runs with the grain

#	Part	Qty	Length	Width	Thick	Material	From	Finish	Grain
1	Leg	4	17-1/4"	1-3/4"	1-3/4"	Red Oak	A	Wipe-on poly	Length
2	Top board 1	1	48"	6"	3/4"	Red Oak	B	Wipe-on poly	Length, moves 3/32"
3	Top board 2	1	48"	6"	3/4"	Red Oak	C	Wipe-on poly	Length, moves 3/32"
4	Top board 3	1	48"	6"	3/4"	Red Oak	D	Wipe-on poly	Length, moves 3/32"
5	Top board 4	1	48"	6"	3/4"	Red Oak	E	Wipe-on poly	Length, moves 3/32"
6	Back apron	1	43-1/4"	3"	3/4"	Red Oak	B	Wipe-on poly	Length, keep, moves 1/16"; Match A, 2 of 2
7	Front apron	1	43-1/4"	3"	3/4"	Red Oak	B	Wipe-on poly	Length, keep, moves 1/16"; Match A, 1 of 2
8	Left apron	1	19-1/4"	3"	3/4"	Red Oak	C	Wipe-on poly	Length, moves 1/16"
9	Right apron	1	19-1/4"	3"	3/4"	Red Oak	C	Wipe-on poly	Length, moves 1/16"

Wood movement

- Top board 1 (flat-sawn red oak, 6" across the grain) moves about 3/32" between 30% and 60% humidity.
- Top board 2 (flat-sawn red oak, 6" across the grain) moves about 3/32" between 30% and 60% humidity.
- Top board 3 (flat-sawn red oak, 6" across the grain) moves about 3/32" between 30% and 60% humidity.
- Top board 4 (flat-sawn red oak, 6" across the grain) moves about 3/32" between 30% and 60% humidity.
- Top board 1 on Back apron: 3 figure-8 fasteners, each in a shallow recess in Back apron's top edge, screwed up into Top board 1.
- Top board 2 on Left apron: 1 figure-8 fastener in a shallow recess in Left apron's top edge, screwed up into Top board 2.
- Top board 3 on Left apron: 1 figure-8 fastener in a shallow recess in Left apron's top edge, screwed up into Top board 3.
- Top board 2 on Right apron: 1 figure-8 fastener in a shallow recess in Right apron's top edge, screwed up into Top board 2.
- Top board 3 on Right apron: 1 figure-8 fastener in a shallow recess in Right apron's top edge, screwed up into Top board 3.
- Top board 4 on Front apron: 3 figure-8 fasteners, each in a shallow recess in Front apron's top edge, screwed up into Top board 4.

Assembly

Which parts join, and how

Part	Joins	Joinery	Each	Where
Back apron	Leg	Mortise and tenon	1	left end
Back apron	Leg	Mortise and tenon	1	right end
Left apron	Leg	Mortise and tenon	1	back end
Left apron	Leg	Mortise and tenon	1	front end
Right apron	Leg	Mortise and tenon	1	back end
Right apron	Leg	Mortise and tenon	1	front end
Front apron	Leg	Mortise and tenon	1	left end

Part	Joins	Joinery	Each	Where
Front apron	Leg	Mortise and tenon	1	right end

Joinery

From the left end and top edge as drawn in the diagrams

#	Part	Joint	Size	Where	Face
1	Leg ×2	Mortise	3/8" wide × 2-1/4" long × 7/8" deep	14-5/8" from the left end, 5/16" from the top edge	Mirror pair
1	Leg ×2	Mortise	3/8" wide × 2-1/4" long × 7/8" deep	14-5/8" from the left end, 7/8" from the top edge	Mirror pair
1	Leg ×2	Mortise	3/8" wide × 2-1/4" long × 7/8" deep	14-5/8" from the left end, 0" from the top edge	Mirror pair
1	Leg ×2	Mortise	3/8" wide × 2-1/4" long × 7/8" deep	14-5/8" from the left end, 1-1/16" from the top edge	Mirror pair
6	Back apron	Tenon	3/8" thick × 2-1/4" wide × 7/8" long	at the left end	Centered
6	Back apron	Tenon	3/8" thick × 2-1/4" wide × 7/8" long	at the right end	Centered
7	Front apron	Tenon	3/8" thick × 2-1/4" wide × 7/8" long	at the left end	Centered
7	Front apron	Tenon	3/8" thick × 2-1/4" wide × 7/8" long	at the right end	Centered
8	Left apron	Tenon	3/8" thick × 2-1/4" wide × 7/8" long	at the left end	Centered
8	Left apron	Tenon	3/8" thick × 2-1/4" wide × 7/8" long	at the right end	Centered
9	Right apron	Tenon	3/8" thick × 2-1/4" wide × 7/8" long	at the left end	Centered
9	Right apron	Tenon	3/8" thick × 2-1/4" wide × 7/8" long	at the right end	Centered

Hardware

Qty	Item	On parts
10	Figure-8 desktop fasteners	6, 7, 8, 9

Leftovers

Usable offcuts after cutting

Piece	Length	Width	Thick	Material
Offcut A1	96"	3-5/8"	1-3/4"	Red Oak
Offcut A2	26-1/2"	1-3/4"	1-3/4"	Red Oak
Offcut B1	4-1/2"	6-1/8"	3/4"	Red Oak
Offcut B2	96"	1"	3/4"	Red Oak
Offcut C1	19-1/4"	2-7/8"	3/4"	Red Oak
Offcut C2	19-1/4"	2-7/8"	3/4"	Red Oak
Offcut C3	9-1/8"	6"	3/4"	Red Oak
Offcut C4	96"	1-1/8"	3/4"	Red Oak
Offcut D1	47-7/8"	6"	3/4"	Red Oak

Piece	Length	Width	Thick	Material
Offcut D2	96"	1-1/8"	3/4"	Red Oak
Offcut E1	47-7/8"	6"	3/4"	Red Oak
Offcut E2	96"	1-1/8"	3/4"	Red Oak

Layout

Where each shelf and divider goes, from one edge

Mark mating parts together from the same reference edge, or use a story stick or a spacer block, so each pair matches even if your tape is off.

2, 5 Top board 1 and Top board 4 ×2: in from the left edge (48" long)

#	Part	On	Left face	Right face
1	Leg	Underside	1-1/2"	3-1/4"
8	Left apron	Underside	1-5/8"	2-3/8"
1	Leg	Underside	44-3/4"	46-1/2"
9	Right apron	Underside	45-5/8"	46-3/8"



3, 4 Top board 2 and Top board 3 ×2: in from the left edge (48" long)

#	Part	On	Left face	Right face
8	Left apron	Underside	1-5/8"	2-3/8"
9	Right apron	Underside	45-5/8"	46-3/8"

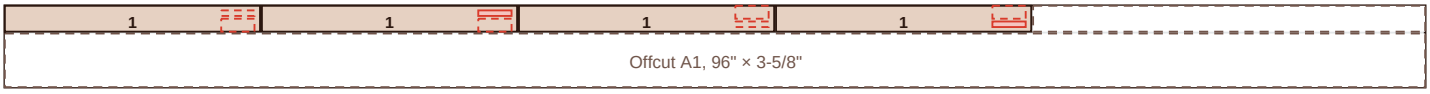


Cutting diagrams

Grey gaps are saw kerf (1/8"). Red is joinery.

Board A 8/4 Red Oak, 5-1/2" × 8'

23% used



96" long, grain runs left to right

5-1/2" wide

1 Leg ×4 17-1/4" × 1-3/4"

Board B 4/4 Red Oak, 7-1/4" × 8'

79% used



96" long, grain runs left to right

7-1/4" wide

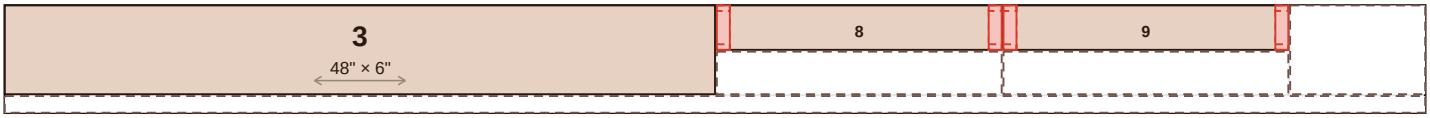
2 Top board 1 48" × 6"

6 Back apron 43-1/4" × 3"

7 Front apron 43-1/4" × 3"

Board C 4/4 Red Oak, 7-1/4" × 8'

58% used



96" long, grain runs left to right

7-1/4" wide

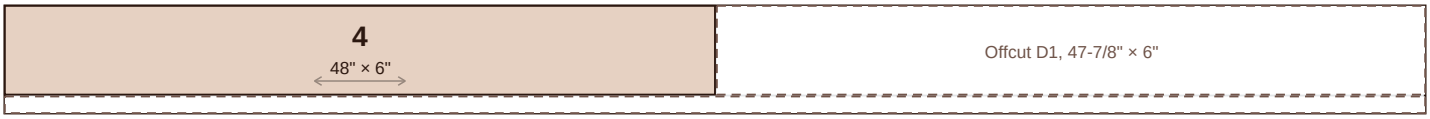
3 Top board 2 48" × 6"

8 Left apron 19-1/4" × 3"

9 Right apron 19-1/4" × 3"

Board D 4/4 Red Oak, 7-1/4" × 8'

41% used



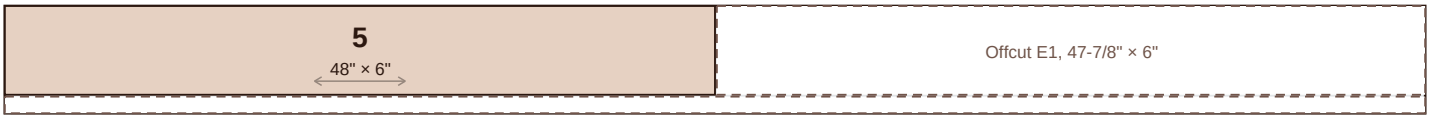
96" long, grain runs left to right

7-1/4" wide

4 Top board 3 48" × 6"

Board E 4/4 Red Oak, 7-1/4" × 8'

41% used



96" long, grain runs left to right

7-1/4" wide

5 Top board 4 48" × 6"

Cut sequence

Check off each step as you go

- [ ] **1** Get Board B: 4/4 Red Oak, 7-1/4" × 8'.
- [ ] **2** From Board B, rip a strip 6-1/8" wide for Strip 1.
- [ ] **3** From Strip 1 (Board B), crosscut a piece 43-1/4" long for Match A: Front apron, 1 of 2 and Back apron, 2 of 2, to cut side by side in order, so the grain runs on.
- [ ] **4** From Match A, rip a strip 3" wide for Front apron, 1 of 2.
- [ ] **5** What's left of Match A is Back apron, 2 of 2.
- [ ] **6** From Strip 1 (Board B), crosscut a piece 48" long for Top board 1.
- [ ] **7** From Top board 1 (Board B), rip a strip 6" wide for Top board 1.
- [ ] **8** Get Board C: 4/4 Red Oak, 7-1/4" × 8'.
- [ ] **9** From Board C, rip a strip 6" wide for Strip 1.
- [ ] **10** From Strip 1 (Board C), crosscut a piece 48" long for Top board 2.
- [ ] **11** From Strip 1 (Board C), crosscut a piece 19-1/4" long for Left apron.
- [ ] **12** From Left apron (Board C), rip a strip 3" wide for Left apron.
- [ ] **13** From Strip 1 (Board C), crosscut a piece 19-1/4" long for Right apron.
- [ ] **14** From Right apron (Board C), rip a strip 3" wide for Right apron.
- [ ] **15** Get Board D: 4/4 Red Oak, 7-1/4" × 8'.
- [ ] **16** From Board D, rip a strip 6" wide for Strip 1.
- [ ] **17** From Strip 1 (Board D), crosscut a piece 48" long for Top board 3.
- [ ] **18** Get Board E: 4/4 Red Oak, 7-1/4" × 8'.
- [ ] **19** From Board E, rip a strip 6" wide for Strip 1.
- [ ] **20** From Strip 1 (Board E), crosscut a piece 48" long for Top board 4.
- [ ] **21** Get Board A: 8/4 Red Oak, 5-1/2" × 8'.
- [ ] **22** From Board A, cut Leg to 17-1/4" long × 1-3/4" wide.
- [ ] **23** From Offcut A2, cut Leg to 17-1/4" long × 1-3/4" wide.
- [ ] **24** From Offcut A3, cut Leg to 17-1/4" long × 1-3/4" wide.
- [ ] **25** From Offcut A4, cut Leg to 17-1/4" long × 1-3/4" wide.
- [ ] **26** In Back apron, cut 2 tenons to fit the mating parts (sizes under Joinery).
- [ ] **27** In Leg (Board A), cut a mortise to fit the mating parts (sizes under Joinery).
- [ ] **28** In Leg (Board A), cut a mortise to fit the mating parts (sizes under Joinery).

- [ ] **29** In Left apron, cut 2 tenons to fit the mating parts (sizes under Joinery).
- [ ] **30** In Leg (Board A), cut a mortise to fit the mating parts (sizes under Joinery).
- [ ] **31** In Leg (Board A), cut a mortise to fit the mating parts (sizes under Joinery).
- [ ] **32** In Right apron, cut 2 tenons to fit the mating parts (sizes under Joinery).
- [ ] **33** In Leg (Board A), cut a mortise to fit the mating parts (sizes under Joinery).
- [ ] **34** In Leg (Board A), cut a mortise to fit the mating parts (sizes under Joinery).
- [ ] **35** In Front apron, cut 2 tenons to fit the mating parts (sizes under Joinery).
- [ ] **36** In Leg (Board A), cut a mortise to fit the mating parts (sizes under Joinery).
- [ ] **37** In Leg (Board A), cut a mortise to fit the mating parts (sizes under Joinery).
- [ ] **38** Glue up Top: Top board 1, Top board 2, Top board 3 and Top board 4.

Setup sheets

Set each machine once, then make every cut on its list

Setup 1 Get the stock

- [ ] Board B: 4/4 Red Oak, 7-1/4" × 8' — step 1
- [ ] Board C: 4/4 Red Oak, 7-1/4" × 8' — step 8
- [ ] Board D: 4/4 Red Oak, 7-1/4" × 8' — step 15
- [ ] Board E: 4/4 Red Oak, 7-1/4" × 8' — step 18
- [ ] Board A: 8/4 Red Oak, 5-1/2" × 8' — step 21

Setup 2 Table saw: rip fence at 6-1/8"

Measure from the fence to the nearest tooth of the blade, and make a test cut in scrap.

- [ ] Board B: a strip for Front apron and Back apron — #6, #7 step 2

Setup 3 Table saw: rip fence at 6"

Measure from the fence to the nearest tooth of the blade, and make a test cut in scrap.

- [ ] Board C: a strip for Top board 2 — #3 step 9
- [ ] Board D: a strip for Top board 3 — #4 step 16
- [ ] Board E: a strip for Top board 4 — #5 step 19

Setup 4 Table saw: rip fence at 1-3/4"

Measure from the fence to the nearest tooth of the blade, and make a test cut in scrap.

- [ ] Board A: Leg to width — #1 step 22

Setup 5 Miter saw: stop block at 43-1/4"

Clamp a stop block on the fence 43-1/4" from the blade, and square one end of each piece before it goes to the stop.

- [ ] Strip 1 (Board B): a piece for Match A — step 3

Setup 6 Table saw: rip fence at 3"

Measure from the fence to the nearest tooth of the blade, and make a test cut in scrap.

- [ ] Match A (Board B): a strip for Front apron — #7 step 4
- [ ] Match A (Board B): a strip for Back apron — #6 step 5

Setup 7 Miter saw: stop block at 48"

Clamp a stop block on the fence 48" from the blade, and square one end of each piece before it goes to the stop.

- [ ] Strip 1 (Board B): a piece for Top board 1 — #2 step 6
- [ ] Strip 1 (Board C): a piece for Top board 2 — #3 step 10
- [ ] Strip 1 (Board D): a piece for Top board 3 — #4 step 17
- [ ] Strip 1 (Board E): a piece for Top board 4 — #5 step 20

Setup 8 Table saw: rip fence at 6"

Same setting as setup 3.
Measure from the fence to the nearest tooth of the blade, and make a test cut in scrap.

- [ ] Top board 1 (Board B): a strip for Top board 1 — #2 step 7

Setup 9 Miter saw: stop block at 19-1/4"

Clamp a stop block on the fence 19-1/4" from the blade, and square one end of each piece before it goes to the stop.

- [ ] Strip 1 (Board C): a piece for Left apron — #8 step 11
- [ ] Strip 1 (Board C): a piece for Right apron — #9 step 13

Setup 10 Table saw: rip fence at 3"

Same setting as setup 6.
Measure from the fence to the nearest tooth of the blade, and make a test cut in scrap.

- [ ] Left apron (Board C): a strip for Left apron — #8 step 12
- [ ] Right apron (Board C): a strip for Right apron — #9 step 14

Setup 11 Miter saw: stop block at 17-1/4"

Clamp a stop block on the fence 17-1/4" from the blade, and square one end of each piece before it goes to the stop.

- [ ] Leg: to length — #1 step 22
- [ ] Leg: to length — #1 step 23

Setup 12 Table saw: rip fence at 1-3/4"

Same setting as setup 4.
Measure from the fence to the nearest tooth of the blade, and make a test cut in scrap.

- [ ] Offcut A2: Leg to width — #1 step 23
- [ ] Offcut A3: Leg to width — #1 step 24

Setup 13 Miter saw: stop block at 17-1/4"

Same setting as setup 11.
Clamp a stop block on the fence 17-1/4" from the blade, and square one end of each piece before it goes to the stop.

- [ ] Leg: to length — #1 step 24
- [ ] Leg: to length — #1 step 25

Setup 14 Table saw: rip fence at 1-3/4"

Same setting as setup 4.
Measure from the fence to the nearest tooth of the blade, and make a test cut in scrap.

- [ ] Offcut A4: Leg to width — #1 step 25

Setup 15 Table saw: tenons 7/8" long, 3/8" thick

A dado stack as wide as it goes. The fence at 7/8" to the far side of the stack stops the shoulder.
Blade 3/16" high for the cheeks, one pass each face, then 3/8" high for the edge shoulders.

- [ ] Back apron: tenon at the left end — #6 step 26
- [ ] Back apron: tenon at the right end — #6 step 26
- [ ] Front apron: tenon at the left end — #7 step 35
- [ ] Front apron: tenon at the right end — #7 step 35
- [ ] Left apron: tenon at the left end — #8 step 29
- [ ] Left apron: tenon at the right end — #8 step 29
- [ ] Right apron: tenon at the left end — #9 step 32
- [ ] Right apron: tenon at the right end — #9 step 32

Setup 16 Router: 3/8" spiral bit, 7/8" deep

Plunge in passes of 1/4" or less, the edge guide 5/16" from the face to the near side.
Square the ends with a chisel, or round the tenons to match.

- [ ] Leg ×2: mortise 14-5/8" from the left end, 5/16" from the top edge, 2-1/4" long — #1 steps 27, 28
- [ ] Leg ×2: mortise 14-5/8" from the left end, 7/8" from the top edge, 2-1/4" long — #1 steps 30, 33
- [ ] Leg ×2: mortise 14-5/8" from the left end, 0" from the top edge, 2-1/4" long — #1 steps 31, 34
- [ ] Leg ×2: mortise 14-5/8" from the left end, 1-1/16" from the top edge, 2-1/4" long — #1 steps 36, 37

Setup 17 Glue-ups

Dry fit each one first, then glue and clamp it.

- [ ] Glue up Top: Top board 1, Top board 2, Top board 3 and Top board 4. — step 38

Assembly steps

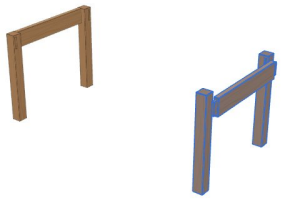
The order it goes together

You need at least 9 clamps: 2 of 48" and 7 of 36".



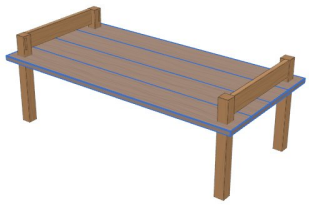
1 Glue up Frame 1

Parts Leg ×2 (part 1), Left apron (part 8)
Order Start with Leg. Add Left apron. Close it with Leg.
Joints Left apron and Leg: 2 mortise and tenons, glue
Glue Glue every joint.
Clamps 1 clamp of 24".



2 Glue up Frame 2

Parts Leg ×2 (part 1), Right apron (part 9)
Order Start with Leg. Add Right apron. Close it with Leg.
Joints Right apron and Leg: 2 mortise and tenons, glue
Glue Glue every joint.
Clamps 1 clamp of 24".



3 Glue up Panel

Parts Top board 1 (part 2), Top board 2 (part 3), Top board 3 (part 4), Top board 4 (part 5)
Joints Top board 1 and Top board 2: 1 edge joint, glue
Top board 2 and Top board 3: 1 edge joint, glue
Top board 3 and Top board 4: 1 edge joint, glue
Glue Glue every joint.
Clamps 9 clamps of 36", and 2 cauls across the ends to keep it flat.



4 Glue up Coffee table

Parts Leg ×4 (part 1), Back apron (part 6), Front apron (part 7), Left apron (part 8), Right apron (part 9)
Order Start with Leg. Add Left apron, Leg, Back apron, Leg, Front apron and Right apron. Close it with Leg.
Joints Back apron and Leg: 2 mortise and tenons, glue
Front apron and Leg: 2 mortise and tenons, glue
Glue Glue every joint.
Clamps 2 clamps of 48".



5 Screw Panel to Coffee table

Parts Top board 1 (part 2), Top board 2 (part 3), Top board 3 (part 4), Top board 4 (part 5), Back apron (part 6), Front apron (part 7), Left apron (part 8), Right apron (part 9)

Joints Back apron and Top board 1: 3 figure-8 desktop fasteners, no glue

Left apron and Top board 2: 1 figure-8 desktop fastener, no glue

Left apron and Top board 3: 1 figure-8 desktop fastener, no glue

Right apron and Top board 2: 1 figure-8 desktop fastener, no glue

Right apron and Top board 3: 1 figure-8 desktop fastener, no glue

Front apron and Top board 4: 3 figure-8 desktop fasteners, no glue

Glue No glue: the screws hold it.

Clamps No clamps.