Coffee table

Overall size: 51-3/16" W × 24" D × 18" H



Parts	Sheets and boards	Saw kerf	Units
12 (10 different)	**7**	**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
2	4/4 Red Oak, 5-1/2" × 8'	Board B, Board C	7.3
4	4/4 Red Oak, 7-1/4" × 8'	Board D, Board E, Board F, Board G	19.3
4	Domino tenons 5 × 30	Hardware	
8	Domino tenons 6 × 40	Hardware	
12	Figure-8 desktop fasteners	Hardware	

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)	$6.00	a board foot	$116.00
1	8/4 Red Oak, 5-1/2" × 8' (7.3 board feet)	$6.00	a board foot	$44.00
4	Domino tenons 5 × 30	$0.25	each	$1.00
8	Domino tenons 6 × 40	$0.25	each	$2.00
12	Figure-8 desktop fasteners	$0.45	each	$5.40
Wood				**$160.00**
Hardware				**$8.40**
Total				**$168.40**
$86.58 of the wood is offcuts and kerf (54%), counted in Wood above.				
Priced at what Optimize sheets packs the parts onto: 5 instead of the 7 they're on now.				

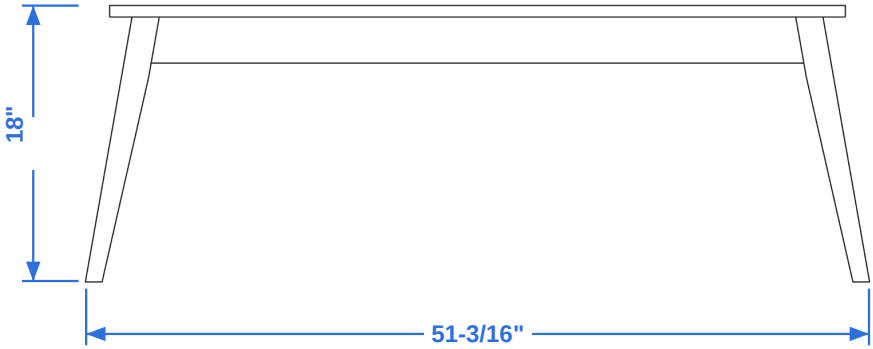
Views

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

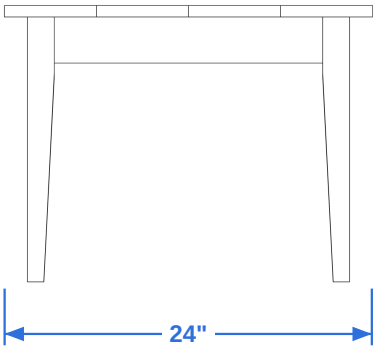
Top



Front

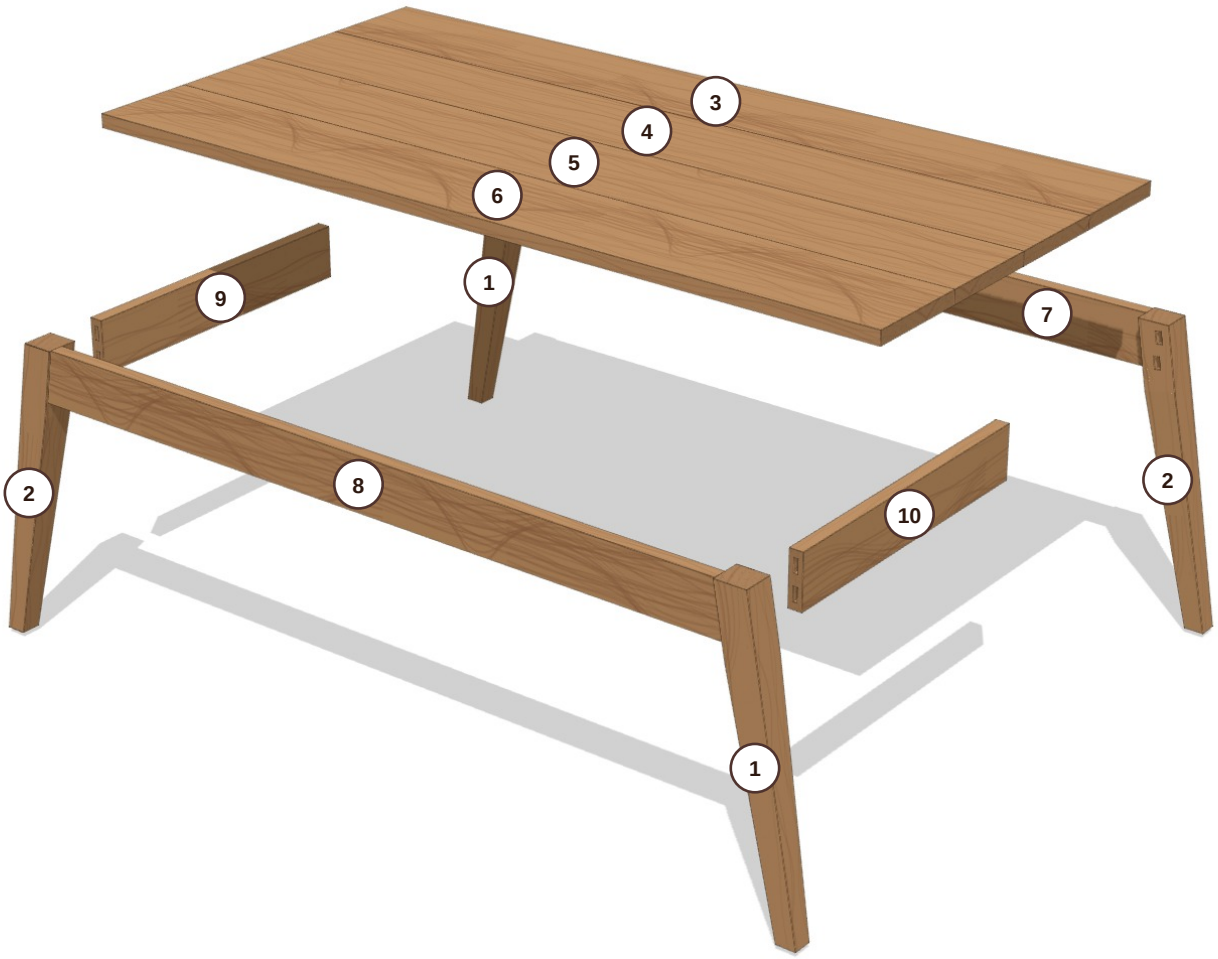


Right side



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	Angles	Grain
1	Leg	2	17-13/16"	1-3/4"	1-3/4"	Red Oak	A	Bevel both ends 10°; taper 2 inside faces from 1-3/4" to 1-1/16", starting 4" down	Length
2	Leg	2	17-13/16"	1-3/4"	1-3/4"	Red Oak	A	Bevel both ends 10°; taper 2 inside faces from 1-3/4" to 1-1/16", starting 4" down	Length
3	Top board 1	1	48"	6"	3/4"	Red Oak	D		Length, moves 3/32"
4	Top board 2	1	48"	6"	3/4"	Red Oak	E		Length, moves 3/32"
5	Top board 3	1	48"	6"	3/4"	Red Oak	F		Length, moves 3/32"
6	Top board 4	1	48"	6"	3/4"	Red Oak	G		Length, moves 3/32"
7	Back apron	1	42-9/16"	3"	3/4"	Red Oak	B	Miter both ends 10°, joined with Dominos	Length, moves 1/16"
8	Front apron	1	42-9/16"	3"	3/4"	Red Oak	C	Miter both ends 10°, joined with Dominos	Length, moves 1/16"
9	Left apron	1	17-1/2"	3"	3/4"	Red Oak	B		Length, moves 1/16"
10	Right apron	1	17-1/2"	3"	3/4"	Red Oak	B		Length, moves 1/16"

Angled parts: cut the blank to the size listed first, then make the cuts in the Angles column. Board feet and sheet use count the blank.

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: 4 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: 4 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
Left apron	Leg	Domino DF 500, 6 × 40 tenons	2	back end
Left apron	Leg	Domino DF 500, 6 × 40 tenons	2	front end
Right apron	Leg	Domino DF 500, 6 × 40 tenons	2	back end
Right apron	Leg	Domino DF 500, 6 × 40 tenons	2	front end

Joinery

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

#	Part	Joint	Size	Where	Face
1	Leg	Loose tenon mortises	2 for 6 × 40 tenons (DF 500), 20 mm deep	15" from the left end, 15/16" from the top edge	Edge
1	Leg	Loose tenon mortises	2 for 6 × 40 tenons (DF 500), 20 mm deep	15-1/16" from the left end, 0" from the top edge	Edge
2	Leg	Loose tenon mortises	2 for 6 × 40 tenons (DF 500), 20 mm deep	15-1/16" from the left end, 15/16" from the top edge	Edge
2	Leg	Loose tenon mortises	2 for 6 × 40 tenons (DF 500), 20 mm deep	15" from the left end, 0" from the top edge	Edge
9	Left apron	Loose tenon mortises	2 for 6 × 40 tenons (DF 500), 20 mm deep	at the left end	Centered
9	Left apron	Loose tenon mortises	2 for 6 × 40 tenons (DF 500), 20 mm deep	at the right end	Centered
10	Right apron	Loose tenon mortises	2 for 6 × 40 tenons (DF 500), 20 mm deep	at the left end	Centered
10	Right apron	Loose tenon mortises	2 for 6 × 40 tenons (DF 500), 20 mm deep	at the right end	Centered

Hardware

Tenons

Qty	Item	On parts
4	Domino tenons 5 × 30	1, 2, 7, 8
8	Domino tenons 6 × 40	
12	Figure-8 desktop fasteners	7, 8, 9, 10

Leftovers

Usable offcuts after cutting

Piece	Length	Width	Thick	Material
Offcut A1	96"	3-5/8"	1-3/4"	Red Oak
Offcut A5	24-3/16"	1-3/4"	1-3/4"	Red Oak
Offcut B1	96"	2-3/8"	3/4"	Red Oak
Offcut B4	18-1/16"	3"	3/4"	Red Oak
Offcut C1	96"	2-3/8"	3/4"	Red Oak
Offcut C2	53-5/16"	3"	3/4"	Red Oak
Offcut D1	96"	1-1/8"	3/4"	Red Oak
Offcut D2	47-7/8"	6"	3/4"	Red Oak
Offcut E1	96"	1-1/8"	3/4"	Red Oak
Offcut E2	47-7/8"	6"	3/4"	Red Oak
Offcut F1	96"	1-1/8"	3/4"	Red Oak
Offcut F2	47-7/8"	6"	3/4"	Red Oak
Offcut G1	96"	1-1/8"	3/4"	Red Oak
Offcut G2	47-7/8"	6"	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.

3, 4, 5, 6 Top board 1, Top board 2, Top board 3 and Top board 4 ×4: in from the left edge (48" long)

#	Part	On	Left face	Right face
9	Left apron	Underside	1-9/16"	2-5/16"
10	Right apron	Underside	45-11/16"	46-7/16"

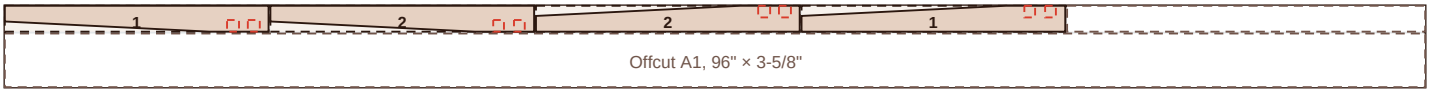


Cutting diagrams

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

Board A 8/4 Red Oak, 5-1/2" × 8'

24% used



96" long, grain runs left to right — 5-1/2" wide

1 Leg ×2 — 17-13/16" × 1-3/4"

2 Leg ×2 — 17-13/16" × 1-3/4"

Board B 4/4 Red Oak, 5-1/2" × 8'

44% used



96" long, grain runs left to right — 5-1/2" wide

7 Back apron — 42-9/16" × 3"

9 Left apron — 17-1/2" × 3"

10 Right apron — 17-1/2" × 3"

Board C 4/4 Red Oak, 5-1/2" × 8'

24% used

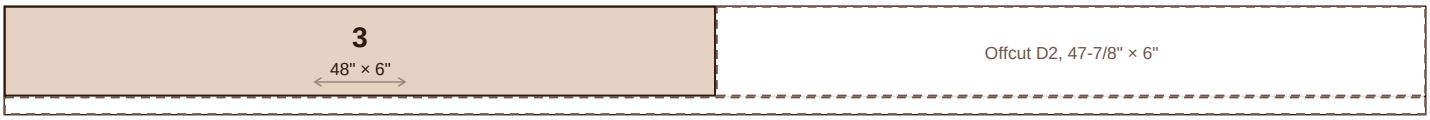


96" long, grain runs left to right — 5-1/2" wide

8 Front apron — 42-9/16" × 3"

Board D 4/4 Red Oak, 7-1/4" × 8'

41% used

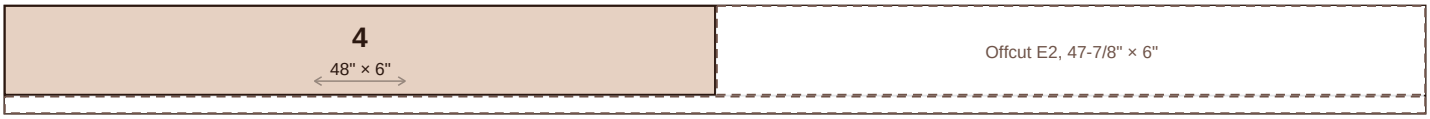


96" long, grain runs left to right — 7-1/4" wide

3 Top board 1 — 48" × 6"

Board E 4/4 Red Oak, 7-1/4" × 8'

41% used

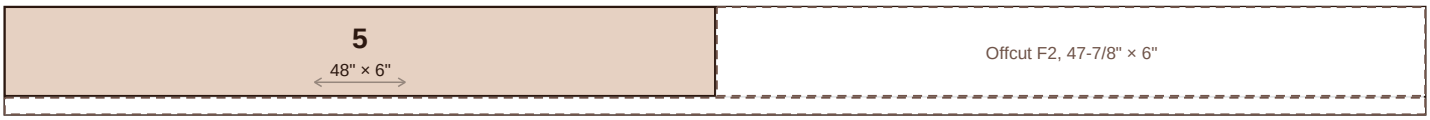


96" long, grain runs left to right — 7-1/4" wide

4 Top board 2 — 48" × 6"

Board F 4/4 Red Oak, 7-1/4" × 8'

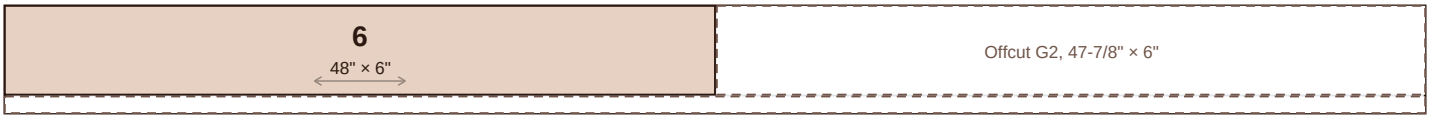
41% used



96" long, grain runs left to right — 7-1/4" wide

5 Top board 3 — 48" × 6"

Board G 4/4 Red Oak, 7-1/4" × 8' 41% used



96" long, grain runs left to right 7-1/4" wide

6 Top board 4 48" × 6"

Cut sequence

Check off each step as you go

- [ ] **1** Get Board A: 8/4 Red Oak, 5-1/2" × 8'.
- [ ] **2** From Board A, cut Leg to 17-13/16" long × 1-3/4" wide.
- [ ] **3** From Offcut A2, cut Leg to 17-13/16" long × 1-3/4" wide.
- [ ] **4** From Offcut A3, cut Leg to 17-13/16" long × 1-3/4" wide.
- [ ] **5** From Offcut A4, cut Leg to 17-13/16" long × 1-3/4" wide.
- [ ] **6** Get Board B: 4/4 Red Oak, 5-1/2" × 8'.
- [ ] **7** From Board B, cut Back apron to 42-9/16" long × 3" wide.
- [ ] **8** From Offcut B2, cut Left apron to 17-1/2" long × 3" wide.
- [ ] **9** From Offcut B3, cut Right apron to 17-1/2" long × 3" wide.
- [ ] **10** Get Board C: 4/4 Red Oak, 5-1/2" × 8'.
- [ ] **11** From Board C, cut Front apron to 42-9/16" long × 3" wide.
- [ ] **12** Miter both ends of Back apron at 10°
- [ ] **13** Miter both ends of Front apron at 10°
- [ ] **14** Bevel both ends of Leg ×4 at 10°, the left face long
- [ ] **15** Taper two faces of Leg ×4 from 1-3/4" to 1-1/16", starting 4" down
- [ ] **16** In Left apron (Board B), cut 2 loose tenon mortises (DF 500, 6 × 40) to fit the mating parts (sizes under Joinery).
- [ ] **17** In Leg (Board A), cut 2 loose tenon mortises (DF 500, 6 × 40) to fit the mating parts (sizes under Joinery).
- [ ] **18** In Left apron (Board B), cut 2 loose tenon mortises (DF 500, 6 × 40) to fit the mating parts (sizes under Joinery).
- [ ] **19** In Leg (Board A), cut 2 loose tenon mortises (DF 500, 6 × 40) to fit the mating parts (sizes under Joinery).
- [ ] **20** In Right apron (Board B), cut 2 loose tenon mortises (DF 500, 6 × 40) to fit the mating parts (sizes under Joinery).
- [ ] **21** In Leg (Board A), cut 2 loose tenon mortises (DF 500, 6 × 40) to fit the mating parts (sizes under Joinery).
- [ ] **22** In Right apron (Board B), cut 2 loose tenon mortises (DF 500, 6 × 40) to fit the mating parts (sizes under Joinery).
- [ ] **23** In Leg (Board A), cut 2 loose tenon mortises (DF 500, 6 × 40) to fit the mating parts (sizes under Joinery).
- [ ] **24** Get Board D: 4/4 Red Oak, 7-1/4" × 8'.
- [ ] **25** From Board D, cut Top board 1 to 48" long × 6" wide.
- [ ] **26** Get Board E: 4/4 Red Oak, 7-1/4" × 8'.
- [ ] **27** From Board E, cut Top board 2 to 48" long × 6" wide.

- [ ] **28** Get Board F: 4/4 Red Oak, 7-1/4" × 8'.
- [ ] **29** From Board F, cut Top board 3 to 48" long × 6" wide.
- [ ] **30** Get Board G: 4/4 Red Oak, 7-1/4" × 8'.
- [ ] **31** From Board G, cut Top board 4 to 48" long × 6" wide.
- [ ] **32** 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 A: 8/4 Red Oak, 5-1/2" × 8' — step 1
- [ ] Board B: 4/4 Red Oak, 5-1/2" × 8' — step 6
- [ ] Board C: 4/4 Red Oak, 5-1/2" × 8' — step 10
- [ ] Board D: 4/4 Red Oak, 7-1/4" × 8' — step 24
- [ ] Board E: 4/4 Red Oak, 7-1/4" × 8' — step 26
- [ ] Board F: 4/4 Red Oak, 7-1/4" × 8' — step 28
- [ ] Board G: 4/4 Red Oak, 7-1/4" × 8' — step 30

Setup 2 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 D: Top board 1 to width — #3 step 25
- [ ] Board E: Top board 2 to width — #4 step 27
- [ ] Board F: Top board 3 to width — #5 step 29
- [ ] Board G: Top board 4 to width — #6 step 31

Setup 3 Table saw: rip fence at 3"

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

- [ ] Board B: Back apron to width — #7 step 7
- [ ] Board C: Front apron to width — #8 step 11

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, #2 step 2

Setup 5 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.

- [ ] Top board 1: to length — #3 step 25
- [ ] Top board 2: to length — #4 step 27
- [ ] Top board 3: to length — #5 step 29
- [ ] Top board 4: to length — #6 step 31

Setup 6 Miter saw: stop block at 42-19/32"

Clamp a stop block on the fence 42-19/32" from the blade, and square one end of each piece before it goes to the stop.

- [ ] Back apron: to length — #7 step 7

- [ ] Front apron: to length — #8 step 11

Setup 7 Table saw: rip fence at 3"

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

- [ ] Offcut B2: Left apron to width — #9 step 8

Setup 8 Miter saw: stop block at 17-13/16"

Clamp a stop block on the fence 17-13/16" from the blade, and square one end of each piece before it goes to the stop.

- [ ] Leg: to length — #1, #2 step 2
- [ ] Leg: to length — #1, #2 step 3

Setup 9 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, #2 step 3
- [ ] Offcut A3: Leg to width — #1, #2 step 4

Setup 10 Miter saw: stop block at 17-13/16"

Same setting as setup 8.
Clamp a stop block on the fence 17-13/16" from the blade, and square one end of each piece before it goes to the stop.

- [ ] Leg: to length — #1, #2 step 4
- [ ] Leg: to length — #1, #2 step 5

Setup 11 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, #2 step 5

Setup 12 Miter saw: stop block at 17-1/2"

Clamp a stop block on the fence 17-1/2" from the blade, and square one end of each piece before it goes to the stop.

- [ ] Left apron: to length — #9 step 8
- [ ] Right apron: to length — #10 step 9

Setup 13 Table saw: rip fence at 3"

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

- [ ] Offcut B3: Right apron to width — #10 step 9

Setup 14 Miter saw: miter at 10°

Swing the saw to 10°. Make a test cut on scrap first and check it.
A stop block for the second part, so pairs come out the same length.

- [ ] Back apron: Miter both ends 10°, joined with Dominos — #7 step 12
- [ ] Front apron: Miter both ends 10°, joined with Dominos — #8 step 13

Setup 15 Miter saw: bevel at 10°

Tilt the blade to 10°, the left face up so it stays long. Make a test cut on scrap first and check it.
A stop block for the second part, so pairs come out the same length.

- [ ] Leg ×4: Bevel both ends 10° — #1, #2 step 14

Setup 16 Table saw: taper jig, 11/16" over 13-13/16"

Mark the taper: full size 4" down, 1-1/16" at the narrow end.
Set the jig so the blade meets both marks: nothing off where the taper starts, 11/16" off at the narrow end.

- [ ] Leg ×4: Taper 2 faces from 1-3/4" to 1-1/16", starting 4" down — #1, #2 step 15

Setup 17 Domino DF 500: 6 × 40 tenons, 20 mm deep

The 6 mm cutter, the depth stop at 20 mm.
Height to the centre of the 3/4" stock: 3/8" (9.5 mm).
Width: the tightest setting for the first mortise of each joint, the next wider for the rest.

- [ ] Left apron: 2 mortises at the left end — #9 step 16
- [ ] Left apron: 2 mortises at the right end — #9 step 18
- [ ] Right apron: 2 mortises at the left end — #10 step 20
- [ ] Right apron: 2 mortises at the right end — #10 step 22

Setup 18 Domino DF 500: 6 × 40 tenons, 20 mm deep

The 6 mm cutter, the depth stop at 20 mm.
Plunge into the face on the layout marks, the base flat on the part.
Width: the tightest setting for the first mortise of each joint, the next wider for the rest.

- [ ] Leg: 2 mortises 15-1/32" from the left end, 31/32" from the top edge — #1 step 17
- [ ] Leg: 2 mortises 15-1/16" from the left end, 0" from the top edge — #1 step 23
- [ ] Leg: 2 mortises 15-1/32" from the left end, 0" from the top edge — #2 step 19
- [ ] Leg: 2 mortises 15-1/16" from the left end, 31/32" from the top edge — #2 step 21

Setup 19 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 32

Assembly steps

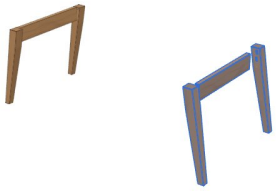
The order it goes together

You need at least 9 clamps of 36".



1 Glue up Frame 1

Parts Leg (part 1), Leg (part 2), Left apron (part 9)
Order Start with Leg. Add Left apron. Close it with Leg.
Joints Left apron and Leg: 2 joints, 4 domino tenons 6 × 40, glue
Glue Glue every joint.
Clamps 1 clamp of 24".



2 Glue up Frame 2

Parts Leg (part 1), Leg (part 2), Right apron (part 10)
Order Start with Leg. Add Right apron. Close it with Leg.
Joints Right apron and Leg: 2 joints, 4 domino tenons 6 × 40, glue
Glue Glue every joint.
Clamps 1 clamp of 24".



3 Glue up Panel

Parts Top board 1 (part 3), Top board 2 (part 4), Top board 3 (part 5), Top board 4 (part 6)
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 Screw Frame to Panel 1

Parts Leg (part 1), Leg (part 2), Top board 2 (part 4), Top board 3 (part 5), Left apron (part 9)
Joints 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
Glue No glue: the screws hold it.
Clamps No clamps.



5 Screw Frame to Panel 2

Parts Leg (part 1), Leg (part 2), Top board 2 (part 4), Top board 3 (part 5), Right apron (part 10)

Joints 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

Glue No glue: the screws hold it.

Clamps No clamps.



6 Screw Back apron to Panel

Parts Top board 1 (part 3), Back apron (part 7)

Joints Back apron and Top board 1: 4 figure-8 desktop fasteners, no glue

Glue No glue: the screws hold it.

Clamps No clamps.



7 Screw Front apron to Panel

Parts Top board 4 (part 6), Front apron (part 8)

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

Glue No glue: the screws hold it.

Clamps No clamps.