Kitchen Bar Cabinet

Complete Build Manual

Modern Farmhouse Design with X-Frame Accents

Version: 1.1 (Publication Edition)

Date: January 2026

Difficulty: Intermediate

Estimated Time: 35-40 hours (4-5 weekends)

Estimated Cost: $2,900 - $3,500

Kitchen Bar Cabinet - Build Manual

Table of Contents

Kitchen Bar Cabinet - Build Manual

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Table of Contents

Supplementary Guides:

- [Living Room Panel Installation](LIVING-ROOM-PANEL-CHAPTER.md) - Complete X-frame panel construction and installation

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Kitchen Bar Cabinet - Build Manual

Chapter 1: Project Overview

Design Summary

This build manual guides you through constructing a split-level kitchen bar cabinet that replaces an existing metal railing. The cabinet features modern farmhouse styling with X-frame accents, a sliding barn door, and a butcher block countertop.

Key Dimensions

Dimension	Measurement	Notes
Total Length	92"	Three cabinet sections
Total Height	40"	From kitchen floor
Cabinet Height	34-1/2"	Standard counter height minus top
Toe Kick Height	4-1/4"	2x4 flat (3-1/2") + 3/4" plywood top
Countertop Thickness	1-1/2"	Butcher block
Cabinet Depth	14"	Shallow for walkway
Countertop Depth	30"	12" knee space + 14" cabinet + 3" overhang + 1" wall clearance

Cabinet Sections

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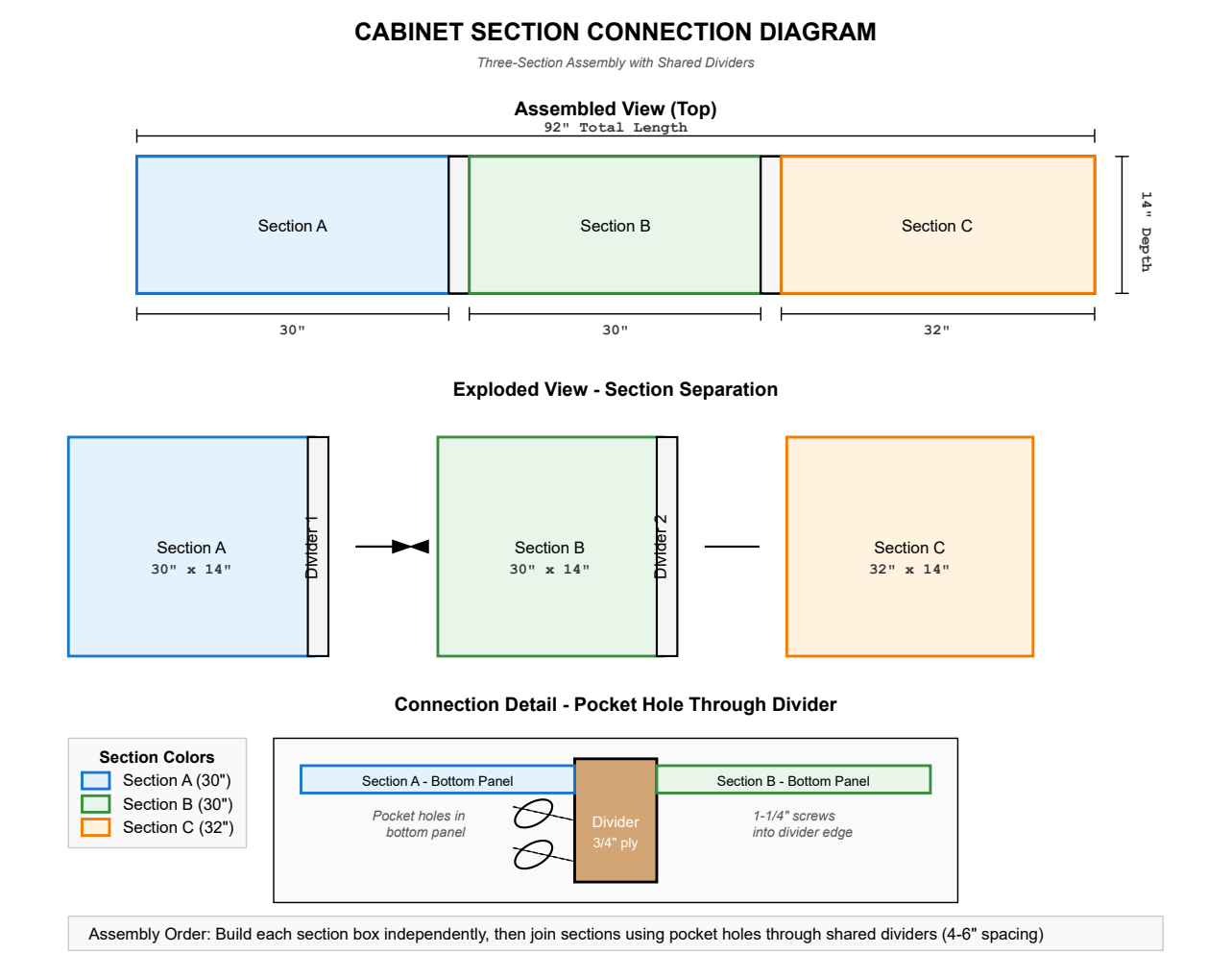

Figure 1.1: Cabinet Section Layout - Three sections totaling 92" width

Section 1 (Left - 30"): Triple drawer bank for storage **Section 2 (Center - 30"):** Sliding barn door with shelves **Section 3 (Right - 32"):** Double-door cabinet with shelves

Design Features

- **X-frame end panels** on barn door and living room panel - **Sliding barn door** with soft-close track - **LED lighting** under counter overhang and inside cabinet - **Pop-up outlet** in countertop with USB ports - **Foot rail** (2" matte black stainless) - **Chevron butcher block** countertop (acacia) - **Modern farmhouse aesthetic** (Benjamin Moore Hale Navy HC-154, warm wood accents)

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Before You Begin Checklist

Complete these items before starting construction:

- [ ] Read this entire manual once through
- [ ] Verify all measurements against your actual space
- [ ] Purchase all materials (allow 2-3 weeks for special orders)
- [ ] Set up a clean, flat workspace (garage or driveway)
- [ ] Test fit major components (butcher block slabs)
- [ ] Confirm electrical source location and capacity
- [ ] Check local permit requirements for electrical work

Safety Notes

Personal Protective Equipment

Activity	Required PPE
Cutting plywood	Safety glasses, hearing protection
Routing/drilling	Safety glasses, dust mask
Sanding	Safety glasses, N95 respirator
Painting/staining	Nitrile gloves, N95 respirator
Finishing (shellac)	Nitrile gloves, respirator, ventilation

Tool Safety

1. **Circular saw:** Keep blade guard functional, clamp workpiece securely 2. **Miter saw:** Keep hands 6" from blade, secure long pieces 3. **Pocket hole jig:** Clamp material, drill straight 4. **Router:** Unplug when changing bits, move against rotation

Electrical Safety

1. **Turn off power** at breaker before any electrical work 2. **Verify dead circuit** with non-contact voltage tester 3. **Use GFCI protection** for all kitchen outlets (code requirement) 4. **Never work on live circuits** - test twice, work once

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Project Timeline

Weekend 1: Preparation and Platform (6-8 hours)

- Day 1: Shopping, organizing materials, cutting lumber - Day 2: Build toe kick platform, level and position

Weekend 2: Cabinet Boxes (8-10 hours)

- Day 1: Cut all plywood, drill pocket holes - Day 2: Assemble cabinet boxes, install backs

Weekend 3: Drawers and Doors (6-8 hours)

- Day 1: Build drawer boxes, install slides - Day 2: Build barn door, install track system

Weekend 4: Finishing - Part 1 (6-8 hours)

- Day 1: Sand and prime all cabinet components - Day 2: First paint coat

Weekend 5: Finishing - Part 2 and Installation (8-10 hours)

- Day 1: Final paint coat, install cabinets - Day 2: Install countertop, hardware, electrical

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Kitchen Bar Cabinet - Build Manual

Chapter 2: Tools & Materials

Tool List

Must-Have Tools

Tool	Purpose	Notes
Circular saw	Ripping plywood	7-1/4" blade, good quality
Miter saw	Crosscuts, trim	10" minimum
Drill/driver	Screws, pocket holes	Cordless 18V+
Kreg pocket hole jig	All cabinet joinery	K4 or K5 model
Random orbital sander	Surface prep	5" with dust collection
Router	Edge profiles, wire holes	1-1/4 HP minimum
Tape measure	Measuring	25' length
Speed square	Layout, marking	7"
Clamps	Assembly	4-6 bar clamps (24"+)
Level	Platform, installation	4' level
Chalk line	Layout	For long cuts

Nice-to-Have Tools

Tool	Purpose	Notes
Track saw	Precision plywood cuts	Alternative to circular saw
Brad nailer	Trim attachment	18-gauge
Table saw	If available	NOT required for this build
Jigsaw	Curved cuts	For outlet hole
Forstner bits	Wire holes	1", 3/4", 1/2"
Hole saw	Pop-up outlet	3-3/4"

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Safety Equipment

- Safety glasses (ANSI Z87.1 rated) - Hearing protection (plugs or muffs) - N95 dust masks (10-pack) - Nitrile gloves (box of 100) - First aid kit

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Master Bill of Materials

Plywood

Type	Size	Qty	Price Each	Total	Notes
3/4" cabinet-grade birch	4' x 8'	4	$65	$260	Cabinet boxes, fronts
1/2" Baltic birch	4' x 8'	1	$55	$55	Drawer boxes
1/4" plywood	4' x 8'	1	$25	$25	Cabinet backs, drawer bottoms
Subtotal Plywood	**$340**				

Dimensional Lumber

Type	Length	Qty	Price Each	Total	Notes
2x4 SPF	8'	3	$5	$15	Toe kick platform
1x4 pine/poplar	8'	6	$8	$48	Barn door X-frame, trim
1x6 pine/poplar	8'	3	$10	$30	Living room panel frame
Subtotal Lumber	**$93**				

Hardware - Drawers

Item	Specification	Qty	Price	Total
Drawer slides	14" full-ext soft-close	3 pairs	$12/pair	$36
Drawer pulls	5" bar pulls, matte black	3	$8	$24
Subtotal Drawers	**$60**			

Kitchen Bar Cabinet - Build Manual

Hardware - Barn Door

Item	Specification	Qty	Price	Total
Barn door track kit	72" matte black w/soft-close	1	$60	$60
Barn door pull	Flush pull, matte black	1	$25	$25
Subtotal Barn Door	**$85**			

Hardware - Cabinet Doors

Item	Specification	Qty	Price	Total
Pre-made shaker doors	15-1/2" x 34-1/2"	2	$40	$80
Concealed hinges	Soft-close, matte black	4	$8	$32
Door pulls	Vertical, matte black	2	$12	$24
Subtotal Doors	**$136**			

Fasteners

Item	Specification	Qty	Price	Total
Pocket screws	1-1/4" coarse thread	500 ct	$18	$18
Pocket screws	5/8" coarse thread	100 ct	$8	$8
Wood glue	Titebond II, 16 oz	2	$8	$16
Brad nails	1-1/4" 18-gauge	1 box	$8	$8
Construction screws	2-1/2"	1 lb	$10	$10
Cabinet screws	3"	12 ct	$8	$8
Subtotal Fasteners	**$68**			

Kitchen Bar Cabinet - Build Manual

Butcher Block

Item	Specification	Qty	Price	Total
Acacia butcher block	72" x 39" x 1-1/2"	2	$350	$700
Domino/biscuit joiner	(rental or buy)	-	$50	$50
Subtotal Countertop	**$750**			

Finishing Materials

Item	Specification	Qty	Price	Total
Shellac primer	Zinsser B-I-N, 1 qt	1	$28	$28
Cabinet paint	BM Advance Satin, 1 gal	2	$80	$160
Wood stain	Minwax Golden Oak	1 qt	$12	$12
Polyurethane	Minwax satin	2 qt	$18	$36
Butcher block finish	Rubio Monocoat Pure	350ml	$60	$60
Sandpaper assortment	80-320 grit	-	$40	$40
Brushes, rollers, supplies	-	-	$60	$60
Subtotal Finishing	**$396**			

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Electrical & Features

Item	Specification	Qty	Price	Total
Pop-up outlet	Lew Electric GFCI + USB	1	$295	$295
LED strip kit	HitLights 24V 16.4ft	1	$48	$48
LED power supply	24V 96W	1	$35	$35
LED channels/diffusers	Aluminum	3	$20	$60
Foot rail kit	8ft matte black stainless	1	$240	$240
Romex wire	12/2, 25ft	1	$25	$25
Low-voltage wire	18 AWG, 25ft	1	$15	$15
Misc electrical	Junction box, grommets	-	$40	$40
Subtotal Electrical	**$758**			

Grand Total

Category	Cost
Plywood	$340
Dimensional Lumber	$93
Drawer Hardware	$60
Barn Door Hardware	$85
Cabinet Door Hardware	$136
Fasteners	$68
Butcher Block	$750
Finishing Materials	$396
Electrical & Features	$758
GRAND TOTAL	**$2,686**
With 10% contingency	**$2,955**

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Shopping Lists by Store

Home Depot / Lowe's

Lumber:

3/4" x 4' x 8' birch plywood (4)

1/2" x 4' x 8' Baltic birch (1)

1/4" x 4' x 8' plywood (1)

2x4 x 8' SPF (3)

1x4 x 8' pine or poplar (6)

1x6 x 8' pine or poplar (3)

Hardware:

JELD-WEN DesignGlide 72" barn door kit, matte black

Liberty soft-close drawer slides, 14" (3 pairs)

Blum soft-close concealed hinges, black (4)

Fasteners:

Kreg pocket screws 1-1/4" (500 ct)

Kreg pocket screws 5/8" (100 ct)

Titebond II wood glue 16 oz (2)

18-gauge brad nails 1-1/4" (1 box)

Construction screws 2-1/2" (1 lb)

Cabinet screws 3" (12 ct)

Finishing:

Zinsser B-I-N shellac primer (1 qt)

Benjamin Moore Advance Satin (2 gal) - get at BM store

Minwax Golden Oak stain (1 qt)

Minwax Fast-Dry Poly Satin (2 qt)

Sandpaper multi-pack 80/120/150/220

320 grit sandpaper (10 sheets)

Tack cloths (6 pack)

Drop cloths (2)

Foam mini rollers (12)

2-1/2" angled brush, quality (2)

Electrical:

Kitchen Bar Cabinet - Build Manual

12/2 Romex NM-B (25 ft)

Metal junction box 4x4x2 (1)

Wire connectors (1 pack)

Grommets 1" (4)

Grommets 1/2" (4)

Rip at store (FREE!):

- Ask for cuts to 14" and 10" widths - see Cut Lists chapter

Amazon

Hardware:

Ravinte 5" matte black bar pulls (6-pack)

Ravinte vertical matte black pulls (2-pack)

SMARTSTANDARD 12" flush pull, matte black

Electrical:

Lew Electric PUR20-BK-GFI-2USB-AC pop-up outlet

HitLights VITAL-3000K-24V-16.4FT LED strip

HitLights PS-24-96W-UL power supply

HitLights aluminum LED channels (3)

HitLights PIR motion sensor

18 AWG CL2-rated wire (25 ft)

Inline rotary dimmer 24V

Rubio Monocoat Oil Plus 2C Pure (350ml)

Specialty / Online

FastCabinetDoors.com:

Custom shaker doors, 15-1/2" x 34-1/2", paint-grade (2)

- Note: Order 2-3 weeks early!

Top Hardware (or similar):

8ft matte black bar mount foot rail kit, 2" OD

Lumber Yard / Countertop Store:

Acacia chevron butcher block, 72" x 39" x 1-1/2" (2)

Kitchen Bar Cabinet - Build Manual

Pre-Build Preparation

1. Acclimate Materials (48-72 hours before build)

Store plywood and lumber in your work area to adjust to humidity: - Stack plywood flat with spacers between sheets - Store 1x boards flat or standing - Keep materials off concrete floor (use blocking)

2. Store Rip Request

When purchasing plywood, request these rips at the store cutting station:

3/4" Plywood (4 sheets):

- Sheet 1: Rip to 14" width (2 rips = 14", 14", 14", 6" scrap) - Sheet 2: Rip to 14" width (same) - Sheet 3: Rip to 14" width + 10-1/2" width for drawer fronts - Sheet 4: Rip to 35" width for barn door + 35" for living room panel

1/2" Plywood (1 sheet):

- Rip to 10" width (4 rips = 10", 10", 10", 10", 8" scrap)

1/4" Plywood (1 sheet):

- Rip to 12-1/2" width for drawer bottoms - Rip to 34-1/2" width for cabinet backs

3. Organize Workspace

Set up these stations: 1. **Cutting station:** Sawhorses with plywood support 2. **Assembly station:** Flat, level surface 3. **Finishing station:** Ventilated area with painter's pyramids 4. **Storage area:** Organized by project phase

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Kitchen Bar Cabinet - Build Manual

Chapter 3: Cut Lists

Master Cut List

Cabinet Box Parts - 3/4" Plywood

Section 1: Drawer Cabinet (30" wide)

Label	Part	Dimensions	Qty	Notes
A1	Left side	14" x 34-1/2"	1	Good face out
A2	Right side/divider	14" x 34-1/2"	1	Good face both sides
A3	Top	28-1/2" x 14"	1	Interior width
A4	Bottom	28-1/2" x 14"	1	Interior width
A5	Back	30" x 34-1/2"	1	1/4" plywood

Interior width calculation: 30" - (2 x 3/4") = 28-1/2"

Section 2: Barn Door Cabinet (30" wide)

Label	Part	Dimensions	Qty	Notes
B1	Left side/divider	14" x 34-1/2"	1	Shared with A2
B2	Right side/divider	14" x 34-1/2"	1	Good face both sides
B3	Top	28-1/2" x 14"	1	Interior width
B4	Bottom	28-1/2" x 14"	1	Interior width
B5	Shelf 1	28-1/2" x 13"	1	At 11-1/2" height
B6	Shelf 2	28-1/2" x 13"	1	At 23" height
B7	Back	30" x 34-1/2"	1	1/4" plywood

Section 3: Double Door Cabinet (32" wide)

Kitchen Bar Cabinet - Build Manual

Label	Part	Dimensions	Qty	Notes
C1	Left side/divider	14" x 34-1/2"	1	Shared with B2
C2	Right side	14" x 34-1/2"	1	Good face out
C3	Top	30-1/2" x 14"	1	Interior width
C4	Bottom	30-1/2" x 14"	1	Interior width
C5	Back	32" x 34-1/2"	1	1/4" plywood

Interior width calculation: 32" - (2 x 3/4") = 30-1/2"

Drawer Box Parts - 1/2" Plywood

All three drawer boxes are identical:

Label	Part	Dimensions	Qty	Notes
D-F	Drawer front	29-1/2" x 10"	3	Pocket holes on ends
D-B	Drawer back	29-1/2" x 10"	3	Pocket holes on ends
D-L	Drawer left	13" x 10"	3	Depth dimension
D-R	Drawer right	13" x 10"	3	Depth dimension
D-BTM	Drawer bottom	29" x 12-1/2"	3	1/4" plywood

Drawer Fronts - 3/4" Plywood (Applied)

Label	Part	Dimensions	Qty	Notes
DF1	Top drawer front	30" x 10-1/2"	1	Good face out
DF2	Middle drawer front	30" x 10-1/2"	1	Good face out
DF3	Bottom drawer front	30" x 10-1/2"	1	Good face out

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Door and Panel Parts - 3/4" Plywood

Label	Part	Dimensions	Qty	Notes
BD	Barn door panel	30" x 35"	1	X-frame applied
LRP	Living room panel	92" x 34-1/2"	1	Full width, X-frame optional

Cabinet doors: Order pre-made (15-1/2" x 34-1/2" each, 2 qty)

Toe Kick Platform Parts

2x4 Framing

Label	Part	Length	Qty	Notes
TK-F	Front rail	92"	1	Full length
TK-B	Back rail	92"	1	Full length
TK-C	Cross supports	11"	6	Spaced 16" on center

Cross support length: 14" - (2 x 1-1/2") = 11"

Plywood Top

Label	Part	Dimensions	Qty	Notes
TK-TOP	Platform top	92" x 14"	1	3/4" plywood

Foot Rail Backing Blocks (from 2x4 scraps)

Label	Part	Dimensions	Qty	Position
FR-BLK	Backing block	3-1/2" x 3-1/2" x 1-1/2"	3	At 3", 46", 89" from left

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Trim Parts - 1x4 and 1x6

Barn Door X-Frame (1x4)

Kitchen Bar Cabinet - Build Manual

Label	Part	Length	Qty	Notes
BD-T	Top frame	30"	1	45-degree miters
BD-B	Bottom frame	30"	1	45-degree miters
BD-L	Left frame	35"	1	45-degree miters
BD-R	Right frame	35"	1	45-degree miters
BD-X1	Diagonal 1	~41"	1	Cut to fit
BD-X2	Diagonal 2	~41"	1	Cut to fit

Living Room Panel X-Frame (Optional)

1x6 Perimeter:

- Top and bottom: 92" each (mitered) - Left and right: 34-1/2" each (mitered)

1x4 Dividers and Diagonals:

- Vertical dividers: 2 pieces at ~24" (fit between frame) - X-diagonals: 6 pieces at ~40" each (2 per section)

Cutting Sequence

Day 1: Store Cuts and Setup

At the store:

1. Have all plywood ripped to specified widths (see Pre-Build Preparation) 2. Load strips carefully - avoid bending or flexing

At home:

1. Unload and stack plywood with spacers 2. Label each strip with painter's tape: "3/4 - 14" CABINET" etc. 3. Let acclimate overnight

Day 2: Crosscuts - Cabinet Boxes

Miter saw setup:

- Install stop block at 34-1/2" for cabinet sides - Cut all 6 cabinet sides (A1, A2, B2, C1, C2, plus one spare)

Adjust stop block to 28-1/2":

- Cut 4 pieces for Section 1 and 2 tops/bottoms - Cut 2 shelves at 28-1/2" x 13" (rip first if needed)

Kitchen Bar Cabinet - Build Manual

Adjust stop block to 30-1/2":

- Cut 2 pieces for Section 3 top/bottom

Label each piece immediately with painter's tape!

Day 3: Crosscuts - Drawers and Fronts

Miter saw - drawer box parts (1/2" strips):

- Set stop block to 29-1/2" - Cut 6 pieces (3 fronts, 3 backs) - Set stop block to 13" - Cut 6 pieces (6 sides)

Miter saw - drawer fronts (3/4" - 10-1/2" strips):

- Set stop block to 30" - Cut 3 drawer fronts

1/4" plywood for drawer bottoms:

- Circular saw + guide: Cut 3 pieces at 29" x 12-1/2"

Day 4: Large Panels

Circular saw with straightedge guide: Barn door panel:

1. Mark 30" x 35" rectangle on 3/4" plywood 2. Clamp straightedge parallel to cut line 3. Cut with good face DOWN (reduces tearout) 4. Measure diagonals - must be equal (square)

Living room panel:

1. Mark 92" x 34-1/2" rectangle 2. This is your largest and most visible piece - take your time 3. Cut with good face DOWN 4. Measure diagonals - adjust if not square

1/4" cabinet backs:

1. Cut 3 pieces: 30" x 34-1/2" (2) and 32" x 34-1/2" (1)

Day 5: Toe Kick and Trim

Miter saw - 2x4 pieces:

- Cut 2 pieces at 92" (front and back rails) - Cut 6 pieces at 11" (cross supports) - Cut 3 pieces at 3-1/2" x 3-1/2" (backing blocks from scraps)

Miter saw - 1x4 trim:

- Set saw to 45 degrees for mitered frame pieces - Cut barn door frame pieces (30", 30", 35", 35" - all mitered) - Cut rough diagonal pieces at ~41" (will trim to fit)

Optional - 1x6 for living room panel:

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- Cut perimeter frame pieces with miters - Cut 1x4 dividers and diagonals

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Wire Routing Holes

Drill these holes BEFORE cabinet assembly:

Hole	Location	Size	Purpose
H1	A1 (left side), 6" from bottom	1" dia	120V Romex entry
H2	A1 (left side), 4" from bottom	1/2" dia	LED wire entry
H3	A2/B1 divider, 6" from bottom	3/4" dia	Wire pass-through
H4	Cabinet top, as needed	1/4" dia	LED wire drops

Use Forstner bits for clean holes. Install grommets in all holes.

Quality Checkpoint: Cut List Verification

Before proceeding to assembly, verify:

All pieces cut to exact dimensions (measure twice!)

All pieces labeled clearly (painter's tape + marker)

Cabinet sides identical (stack and verify edges align)

Drawer parts identical (all fronts same, all backs same, etc.)

Large panels are square (diagonals equal within 1/8")

Wire holes drilled and grommets installed

Good faces marked on all pieces

No tearout on visible surfaces (sand if minor)

Kitchen Bar Cabinet - Build Manual

Chapter 4: Base Platform Construction

The toe kick platform provides a solid, level base for the cabinet and elevates it to proper height.

Platform Specifications

Dimension	Measurement
Length	92"
Depth	14"
Height	3-1/2" (2x4 on flat)
Top	3/4" plywood = 4-1/4" total

Materials

- 2x4 x 8' SPF (3) - 3/4" plywood: 92" x 14" - Construction screws: 2-1/2" (24) - Shims (if needed)

Step-by-Step Instructions

Step 1: Cut Frame Members

1. Cut two 2x4s to 92" length (front and back rails) 2. Cut six 2x4s to 11" length (cross supports) 3. Cut three 2x4 blocks at 3-1/2" x 3-1/2" (foot rail backing)

Step 2: Assemble Frame

Kitchen Bar Cabinet - Build Manual

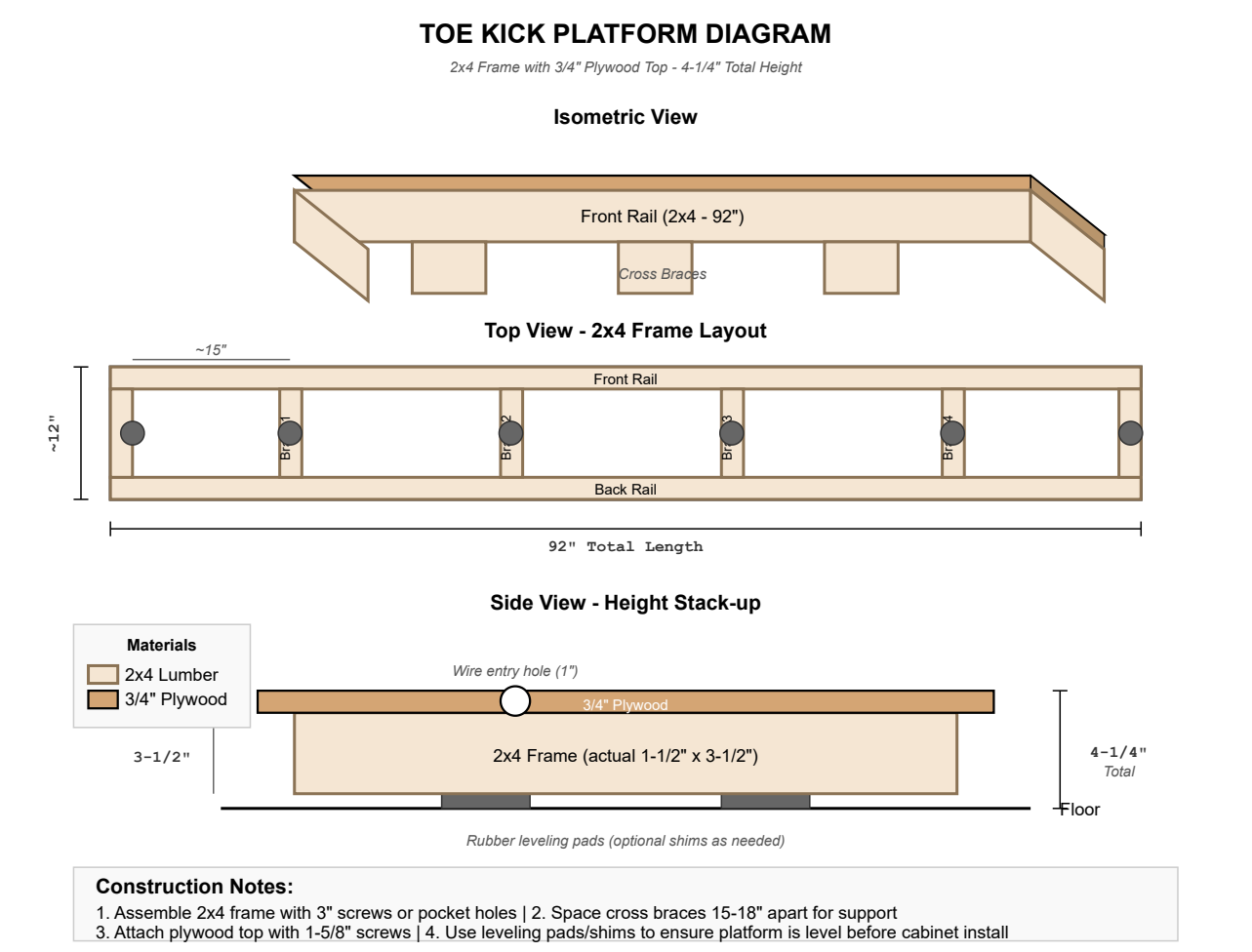

Figure 4.1: Toe Kick Platform Assembly - 2x4 frame with plywood top

Assembly sequence:

1. Lay front rail (TK-F) flat on work surface 2. Position cross supports (TK-C) at: - 0" (flush with left end) - 16" from left - 32" from left - 48" from left - 64" from left - 88-1/2" (flush with right end) 3. Pre-drill two holes through front rail into each cross support 4. Drive 2-1/2" screws (2 per joint) 5. Flip assembly, attach back rail (TK-B) the same way

Step 3: Install Foot Rail Backing Blocks

Position backing blocks INSIDE the toe kick cavity:

Kitchen Bar Cabinet - Build Manual

Block	Position from Left	Purpose
FR-BLK1	3"	Left foot rail bracket
FR-BLK2	46"	Center foot rail bracket
FR-BLK3	89"	Right foot rail bracket

1. Position block against front rail interior 2. Pre-drill and screw through block into front rail 3. Block face should be flush with front rail face (behind toe kick cover)

Step 4: Install Plywood Top

1. Position 92" x 14" plywood on frame 2. Align edges flush all around 3. Pre-drill and screw every 12" into frame members 4. Use 1-1/4" screws (don't penetrate through bottom of 2x4)

Step 5: Level Platform in Position

1. Move completed platform to installation location 2. Place 4' level on top - check front-to-back AND left-to-right 3. Use composite shims as needed under frame 4. Check level again after shimming

Step 6: Secure to Floor (if applicable)

Option A - Concrete floor:

1. Mark anchor locations through platform 2. Move platform, drill holes with hammer drill 3. Install concrete anchors 4. Replace platform, drive screws into anchors

Option B - Wood subfloor:

1. Locate floor joists with stud finder 2. Drive 3" screws through platform into joists 3. Minimum 2 screws per joist location

Option C - Temporary installation:

1. Platform can be weighted by cabinet and countertop 2. Use L-brackets to wall studs for lateral stability

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Quality Checkpoint: Platform

Before proceeding to cabinet assembly, verify:

- [ ] Platform is perfectly level (check multiple locations)
- [ ] Platform is 92" x 14" exact dimensions
- [ ] All joints are tight and secure

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Foot rail backing blocks are installed

Platform is secured to floor (or plan for securing)

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Chapter 5: Cabinet Box Assembly

Overview

Build three cabinet sections that will be joined together on the platform. Each section uses pocket hole joinery throughout.

Pocket Hole Setup

For 3/4" plywood:

- Jig setting: 3/4" material - Drill bit collar: Per jig instructions - Screw length: 1-1/4" coarse thread

Pocket hole locations:

- Ends of top/bottom pieces: 3 holes per end (into sides) - Shelf ends: 3 holes per end (into sides) - No pocket holes in sides

Section 1: Drawer Cabinet (30" wide)

Parts Needed

- A1: Left side (14" x 34-1/2") - A2: Right side (14" x 34-1/2") - A3: Top (28-1/2" x 14") - A4: Bottom (28-1/2" x 14") - A5: Back (30" x 34-1/2" - 1/4" plywood)

Step 1: Drill Pocket Holes

1. Drill 3 pocket holes in each end of top (A3) - 6 total 2. Drill 3 pocket holes in each end of bottom (A4) - 6 total 3. Holes face INSIDE cabinet

Step 2: Dry Fit Assembly

1. Stand both sides upright, parallel, 28-1/2" apart (interior) 2. Position top between sides, flush with top edges 3. Position bottom between sides, 4" up from bottom edges 4. Verify everything fits - adjust if needed

Step 3: Assemble Box

Assembly sequence:

1. Apply wood glue to end of top (A3) 2. Position top against left side (A1), flush with top and front edges 3. Clamp in place 4. Drive 1-1/4" pocket screws (3) 5. Repeat for right side (A2) 6. Repeat process for bottom (A4)

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Step 4: Square the Box

1. Measure both diagonals (corner to corner) 2. Diagonals should be equal within 1/16" 3. If not square, rack box gently until equal 4. Clamp in squared position

Step 5: Install Back

1. Position 1/4" back panel (A5) on back of cabinet 2. Back edges should be flush with cabinet edges all around 3. Apply glue to back edges of cabinet 4. Brad nail or staple back panel every 6" around perimeter 5. Back panel will hold cabinet square

Note: Backs are flush-mounted to exterior edges (not recessed into rabbets). This is why back dimensions match cabinet exterior width. The back overlaps the edges of sides, top, and bottom.

Step 6: Install Wire Grommets

If not already done: 1. Install 1" grommet in H1 hole (Romex entry) 2. Install 1/2" grommet in H2 hole (LED wire entry)

Section 2: Barn Door Cabinet (30" wide)

Parts Needed

- B2: Right side (14" x 34-1/2") - Left side shared with Section 1 - B3: Top (28-1/2" x 14") - B4: Bottom (28-1/2" x 14") - B5: Shelf 1 (28-1/2" x 13") - B6: Shelf 2 (28-1/2" x 13") - B7: Back (30" x 34-1/2" - 1/4" plywood)

Step 1: Drill Pocket Holes

1. Drill 3 pocket holes in each end of top (B3) 2. Drill 3 pocket holes in each end of bottom (B4) 3. Drill 3 pocket holes in each end of shelf 1 (B5) 4. Drill 3 pocket holes in each end of shelf 2 (B6) 5. All holes face inside cabinet

Step 2: Determine Shelf Positions

Shelves create three equal compartments:

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Shelf	Position (bottom edge from cabinet bottom)
Bottom	4" (toe kick clearance)
Shelf 1	11-1/2"
Shelf 2	23"
Top	34-1/2" (flush with top)

Step 3: Assemble Box

1. Start with shared side (A2/B1) or dedicated B1 2. Mark shelf positions on both sides 3. Install top and bottom first (same as Section 1) 4. Install shelves at marked positions 5. Square cabinet, install back panel

Step 4: Verify Opening Dimensions

The barn door opening should be: - Width: 30" (exterior) - Height: 34-1/2" (from top of bottom to underside of top)

Section 3: Double Door Cabinet (32" wide)

Parts Needed

- C2: Right side (14" x 34-1/2") - Left side shared with Section 2 - C3: Top (30-1/2" x 14") - C4: Bottom (30-1/2" x 14") - C5: Back (32" x 34-1/2" - 1/4" plywood)

Step 1: Drill Pocket Holes

1. Drill 3 pocket holes in each end of top (C3) 2. Drill 3 pocket holes in each end of bottom (C4)

Step 2: Assemble Box

1. Same process as Sections 1 and 2 2. Interior width is 30-1/2" 3. Square cabinet, install back panel

---

Joining Cabinet Sections

Option A: Join Before Installation (Recommended)

1. Position all three sections on a flat surface 2. Align tops, fronts, and bottoms 3. Clamp sections together 4. Pre-drill through divider sides into adjacent sections 5. Drive 1-1/4" screws through dividers (4 per joint minimum) 6.

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Install as single unit

Option B: Join After Installation

1. Install Section 1 on platform, level, secure to wall 2. Position Section 2, clamp to Section 1, screw together 3. Position Section 3, clamp to Section 2, screw together 4. Secure all sections to wall

Wall Attachment

1. Locate wall studs behind cabinet 2. Drive 3" cabinet screws through back panel into studs 3. Minimum 4 screws per cabinet section (8 into studs recommended) 4. Verify cabinet is plumb and level after securing

---

Quality Checkpoint: Cabinet Boxes

Before proceeding to drawer construction, verify:

- [ ] All cabinet boxes are square (diagonals equal)
- [ ] Interior dimensions match cut list
- [ ] Shelves are level and at correct heights
- [ ] All joints are tight with no gaps
- [ ] Backs are fully attached and hold boxes square
- [ ] Wire holes have grommets installed
- [ ] Sections are aligned and joined (or ready to join)

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Chapter 5B: Living Room Panel Construction & Installation

Purpose: This chapter covers the construction and installation of the Living Room Panel - a major 92" x 34-1/2" structural element that finishes the living room side of the cabinet and supports the barn door track. **Position in Build Sequence:** Complete this AFTER cabinet box assembly (Chapter 5) and BEFORE barn door installation (Chapter 7).

Overview

What Is the Living Room Panel?

The Living Room Panel is the full-width face of the cabinet that faces your living room. It serves three critical functions:

1. **Structural:** Creates a rigid mounting surface for the barn door track 2. **Aesthetic:** Presents a finished, decorative face to the living room 3. **Concealing:** Hides the backs of the three cabinet boxes from view

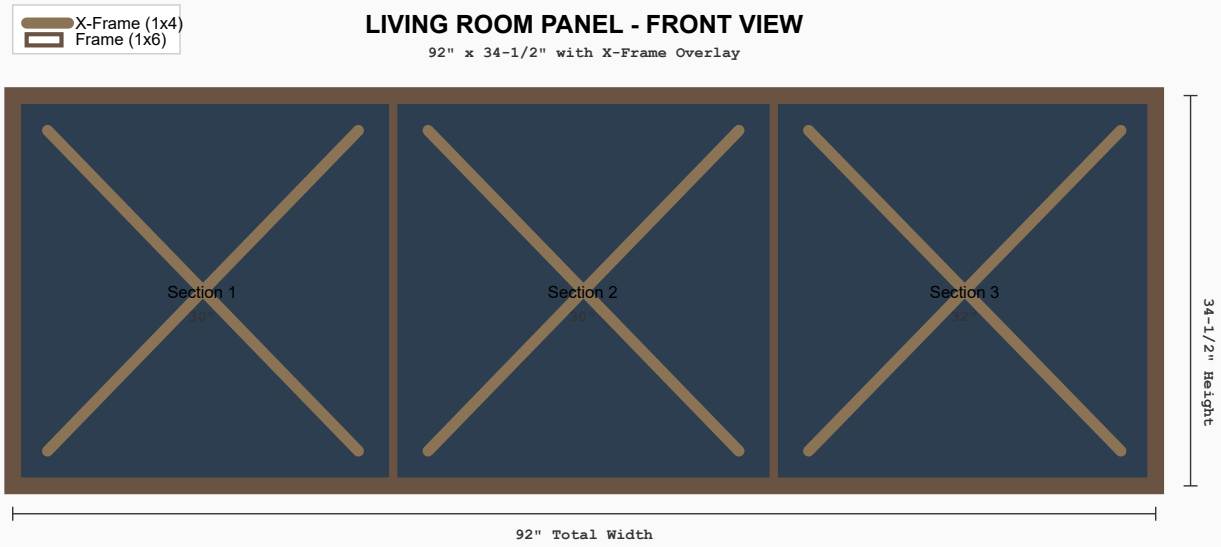

Figure 5B.1: Living Room Panel - Front View with X-Frame Overlay

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Panel Specifications

Specification	Value
Width	92" (full cabinet length)
Height	34-1/2" (cabinet body height)
Thickness	3/4" plywood + 3/4" trim = 1-1/2" total
Material	Cabinet-grade birch plywood
Surface	Three-section X-frame overlay
Finish	Painted to match cabinet (Hale Navy HC-154)

Why This Panel Is Critical

Without the Living Room Panel:

- Barn door track has nothing to mount to - Living room sees exposed cabinet backs - No surface for decorative X-frame design - Cabinet lacks visual weight from living room

With the Living Room Panel:

- Solid mounting for barn door track (supports 50+ lb door) - Professional finished appearance - Coordinates X-frame with barn door design - Creates focal point for living room

---

Materials Required

Plywood

Item	Dimensions	Qty	Notes
3/4" birch plywood	92" x 34-1/2"	1	Cabinet-grade, good face out

Trim Lumber (for X-Frame)

Item	Length	Qty	Purpose
1x6 pine/poplar (5-1/2" actual)	8'	3	Perimeter frame
1x4 pine/poplar (3-1/2" actual)	8'	4	Vertical dividers + X-diagonals

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Fasteners & Supplies

Item	Quantity	Purpose
Pocket screws 1-1/4"	36	Panel to cabinet
Brad nails 1-1/4"	1 box	Trim to panel
Wood glue (Titebond II)	4 oz	Trim attachment
Wood filler	2 oz	Nail holes
Construction adhesive	1 tube	Optional additional bond
Caulk (paintable)	1 tube	Gaps between trim and panel

Estimated Cost: $83

Part 1: Panel Construction

Step 1: Cut the Plywood Panel

Critical Measurements:

- Width: 92" (must match cabinet length exactly) - Height: 34-1/2" (matches cabinet body height)

Cutting Process:

1. Mark 92" x 34-1/2" rectangle on 3/4" plywood 2. Clamp straightedge guide parallel to cut line 3. Cut with circular saw, **good face DOWN** (reduces tearout) 4. Make all four cuts 5. Measure diagonals to verify square: - Both diagonals must be equal within 1/8" - If not equal, trim to square

Quality Check:

- [ ] Dimensions exactly 92" x 34-1/2"
- [ ] Panel is flat (no twist or bow)
- [ ] Good face is clean and undamaged
- [ ] Edges are clean and straight
- [ ] Diagonals are equal (panel is square)

Step 2: Prepare the Panel Surface

1. Sand good face (will be visible) with 120 grit 2. Progress to 150 grit, then 220 grit 3. Sand back face lightly (will face cabinets) 4. Ease all edges with sandpaper (prevents paint peeling) 5. Vacuum all dust 6. Wipe with tack cloth

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Mark the panel:

- Mark "OUT" on visible face - Mark "UP" at top edge - Mark "LEFT" at left edge (from living room view)

Step 3: Prime the Panel (Do This NOW)

Priming before trim installation ensures complete coverage:

1. Apply shellac-based primer (Zinsser B-I-N) to: - Entire front face - All four edges - Back face (prevents moisture-related warping) 2. Let dry 45 minutes 3. Light sand with 320 grit on front face only 4. Tack cloth to remove dust

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Part 2: X-Frame Construction

The X-frame transforms a plain panel into a modern farmhouse focal point. This design creates three equal sections with X-patterns inside each section.

Design Layout

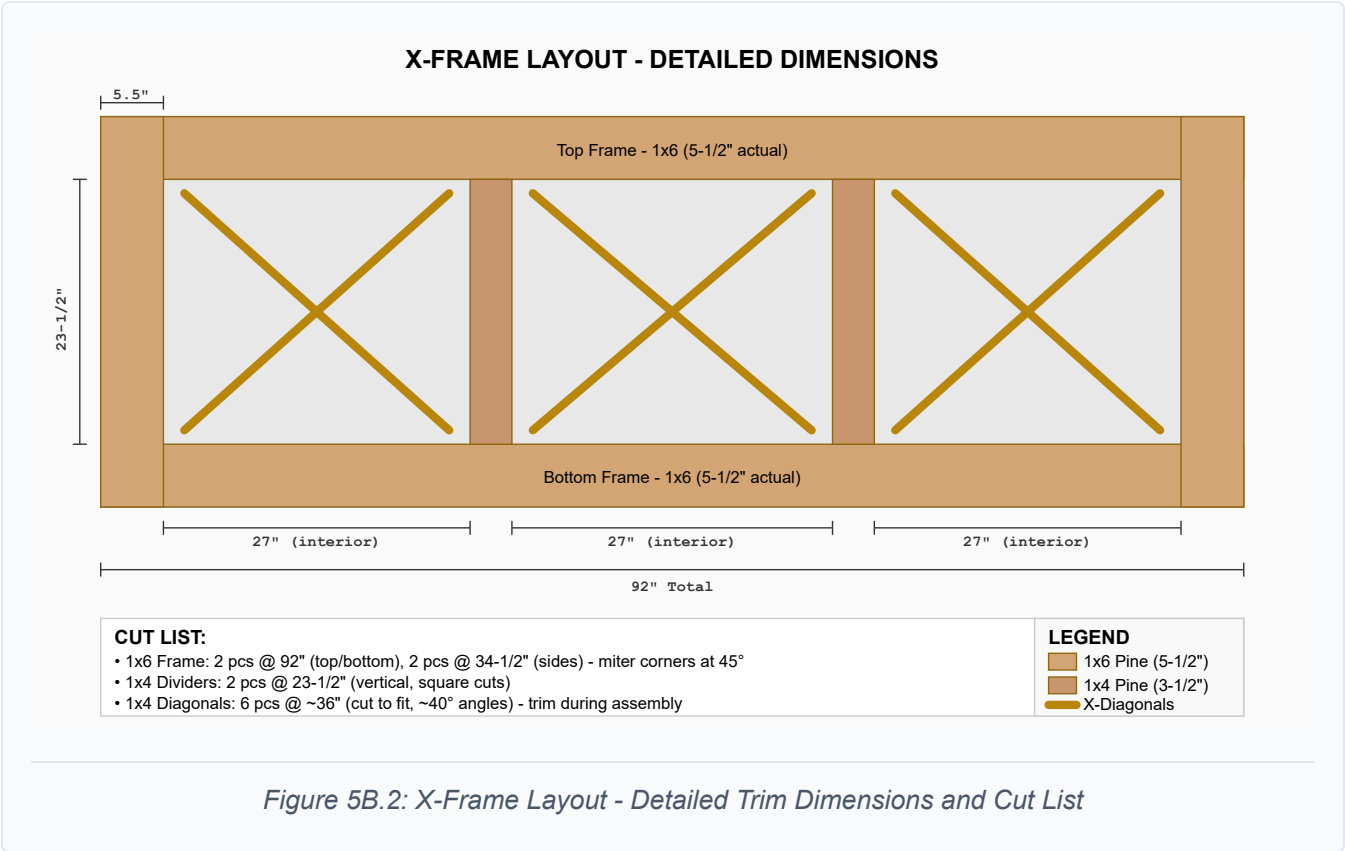

Figure 5B.2: X-Frame Layout - Detailed Trim Dimensions and Cut List

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Step 4: Cut Perimeter Frame Pieces (1x6)

Mark the interior space:

With 5-1/2" frame on all sides, interior is: - Interior width: 92" - (2 x 5.5") = 81" - Interior height: 34.5" - (2 x 5.5") = 23.5"

Cut frame pieces (all with 45-degree miters):

Piece	Length (long point to long point)	Miter
Top frame	92"	45 degrees, both ends
Bottom frame	92"	45 degrees, both ends
Left frame	34-1/2"	45 degrees, both ends
Right frame	34-1/2"	45 degrees, both ends

Miter cutting tips:

1. Set miter saw to 45 degrees 2. Cut one end first 3. Measure from long point 4. Cut second end (miters face OUTWARD for frame corners) 5. Test fit - miters should meet cleanly at corners

Step 5: Cut Vertical Dividers (1x4)

Divider positions:

- Divider 1: 30.67" from left interior edge (after frame) - Divider 2: 61.33" from left interior edge

Cut pieces:

Piece	Length	End Cuts
Divider 1	23-1/2"	Square cuts (fits between top and bottom frame)
Divider 2	23-1/2"	Square cuts

Step 6: Cut X-Diagonal Pieces (1x4)

Each section interior after frame:

- Width: 27" (81" / 3) - Height: 23-1/2"

Calculate diagonal length:

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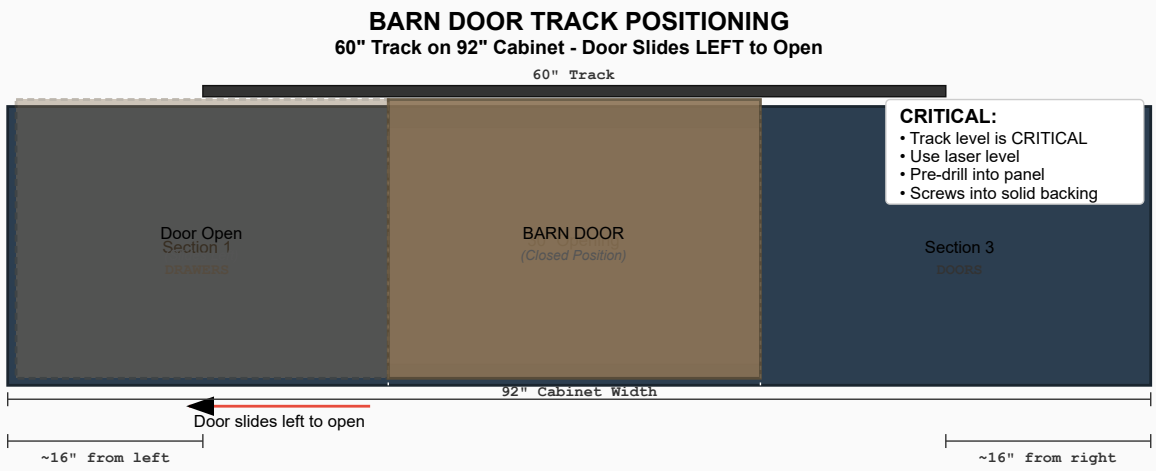

Figure 5B.3: Barn Door Track Positioning - 60" Track on 92" Cabinet

The barn door slides LEFT to open. Track must extend far enough left to fully clear the opening.

Track start: 30" from right edge (leaves room to slide door right when closing) **Track end:** 90" from right edge (clears 30" opening when door slides left) **Track center:** ~60" from left edge **Vertical Position:**

Measurement	Value	Notes
Track position	36-1/2" from cabinet bottom	2" above cabinet top
Door clearance	1/2" above panel top	Door should not drag on top

Step 18: Mark Track Position

1. Measure up 36-1/2" from cabinet bottom (which is 2" above cabinet top/35" panel height) - Note: Track mounts slightly above the panel top, into the countertop overhang area - If your track mounts directly to panel: 34" from panel bottom 2. Draw level horizontal line at this height across panel 3. Use laser level or 4' level - **track MUST be perfectly level** 4. Mark track start and end points (see horizontal position above)

Step 19: Pre-Drill Track Mounting Holes

Determine your track's mounting hole pattern:

Most barn door tracks have mounting holes every 8-12"

1. Position track on marked line (do not install yet) 2. Mark all mounting hole locations on panel 3. Pre-drill 1/8" pilot holes at each mark 4. Drill through panel into cabinet structure behind

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CRITICAL: Ensure screws will hit solid material (cabinet top or backing) not just the 3/4" panel alone. The barn door weighs 30-50 lbs and exerts significant force on the track. **Reinforcement Options:**

If concerned about mounting strength: 1. Add 3/4" plywood blocking behind panel at track location 2. Use longer screws (2-1/2" to 3") 3. Add toggle bolts or structural anchors

Track Installation Note

The actual barn door track installation is covered in **Chapter 7: Barn Door Section**. This chapter prepared: - The mounting surface (Living Room Panel) - The X-frame aesthetic that coordinates with barn door - The pre-drilled mounting holes - The track position marks

---

Quality Checkpoint: Living Room Panel Complete

Before proceeding to barn door installation (Chapter 7), verify:

Panel Construction

- [ ] Panel dimensions exactly 92" x 34-1/2"
- [ ] Panel is square (diagonals equal)
- [ ] X-frame sections are equal width (~27" each)
- [ ] All X-diagonals cross at center of sections
- [ ] No gaps in mitered frame corners
- [ ] All nail holes filled and sanded
- [ ] Surface is smooth and ready for paint (or painted)

Panel Installation

- [ ] Panel is plumb (vertical) with level
- [ ] Panel is flush with cabinet top and bottom
- [ ] Panel is flush at both cabinet ends
- [ ] Panel does not flex when pressed
- [ ] All pocket screws are tight
- [ ] No visible fasteners from living room view

Barn Door Prep

- [ ] Track line marked and perfectly level
- [ ] Mounting holes pre-drilled

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Holes penetrate solid backing (not just panel)

Finishing

Panel is primed

First paint coat applied (if following Option A)

Second paint coat applied

No drips, runs, or brush marks

Crevices and corners fully coated

Troubleshooting

Problem: Mitered frame corners have gaps

Cause: Miter cuts not exactly 45 degrees, or panel edges not perfectly square **Fix:**

- Fill gap with wood filler - Sand smooth - Caulk joint before painting - Clamp corners while glue dries on future joints

Problem: Panel doesn't sit flat against cabinet backs

Cause: Cabinet backs not aligned, or panel warped **Fix:**

- Check cabinet alignment first - adjust cabinets if needed - Use shims behind panel to fill gaps - Apply construction adhesive to bridge gaps - Pull panel tight with pocket screws

Problem: X-diagonals don't meet at center

Cause: Section measurements off, or diagonals cut incorrectly **Fix:**

- Always measure actual section dimensions - Cut diagonals slightly long, trim to fit - If already installed, caulk and paint will hide minor gaps

Problem: Panel flexes when pressed

Cause: Not enough screws, or screws not reaching cabinet structure **Fix:**

- Add more pocket screws - Use longer screws that reach cabinet backs - Add construction adhesive for additional rigidity

Problem: Barn door track sags in center

Cause: Track not secured to solid backing **Fix:**

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- Add 3/4" plywood blocking behind panel - Use longer screws - Ensure screws penetrate cabinet structure, not just panel

---

Time Estimate

Task	Estimated Time
Cut and prepare panel	1 hour
Cut X-frame trim pieces	1.5 hours
Assemble X-frame to panel	2-3 hours
Fill, sand, prime	1.5 hours
Install panel on cabinet	1 hour
Mark and pre-drill for track	30 minutes
Painting (2 coats + dry time)	3 hours active + 32 hours dry

Total Active Time: 10-11 hours **Total with Dry Time:** 2 days

---

Summary

The Living Room Panel is a critical structural and aesthetic element of the Kitchen Bar project. It:

1. **Creates the living room focal point** with the X-frame design 2. **Provides mounting surface** for the barn door track 3. **Conceals cabinet backs** for a finished appearance 4. **Coordinates with barn door** for cohesive modern farmhouse aesthetic

Complete this chapter thoroughly before proceeding to barn door installation. A properly built and installed Living Room Panel ensures the barn door operates smoothly and the cabinet presents beautifully from the living room.

Chapter 5B: Living Room Panel Kitchen Bar Cabinet Build Manual Version 1.0 - January 2026

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Chapter 6: Drawer Construction

Drawer Specifications

Drawer box dimensions (all 3 identical):

- Width: 29-1/2" (cabinet interior minus slide clearance) - Height: 10" - Depth: 13" - Material: 1/2" plywood

Drawer front dimensions (applied):

- Width: 30" (full opening width) - Height: 10-1/2" (covers opening plus overlap) - Material: 3/4" plywood

Step 1: Prepare Drawer Box Parts

You should have pre-cut: - 3 fronts (D-F): 29-1/2" x 10" - 3 backs (D-B): 29-1/2" x 10" - 6 sides (D-L, D-R): 13" x 10" - 3 bottoms: 29" x 12-1/2" (1/4" plywood)

Mark interior faces on all pieces (pocket holes go here)

Step 2: Drill Pocket Holes

For 1/2" plywood:

- Jig setting: 1/2" material - Screw length: 5/8" coarse thread

Drill locations:

- Front pieces (D-F): 3 holes on each END (6 total per piece) - Back pieces (D-B): 3 holes on each END (6 total per piece) - Side pieces: 3 holes on BOTTOM edge (for attaching bottom)

Total holes per drawer: 18

Step 3: Assemble Drawer Box

Assembly sequence for ONE drawer:

1. Apply glue to end of drawer front (D-F) 2. Position left side (D-L) against inside of front, flush with edges 3. Clamp in place 4. Drive 5/8" pocket screws (3) 5. Repeat for right side (D-R) 6. Apply glue to side ends 7. Position back (D-B) against sides 8. Drive pocket screws through back into sides (6)

Install bottom:

1. Apply glue to bottom edges of box 2. Position 1/4" bottom on edges (or attach with pocket screws if using 1/2" bottom) 3. Brad nail every 6" around perimeter 4. Alternatively, drive pocket screws up through sides into bottom

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Check for square:

1. Measure diagonals - must be equal 2. Adjust before glue sets 3. Wipe excess glue immediately

Step 4: Sand and Finish Drawer Boxes

1. Sand exterior surfaces with 150 grit 2. Ease all sharp edges (one pass with sandpaper) 3. Interior can remain unfinished 4. Apply one coat shellac or poly (optional but recommended)

Step 5: Install Cabinet-Side Slides

Slide specifications:

- Type: Side-mount, full-extension, soft-close - Length: 14" - Model: Liberty D80618C-ZP-W or equivalent

Vertical positioning (from cabinet bottom):

Drawer	Slide Bottom Position
Bottom drawer	2" up
Middle drawer	12-1/2" up
Top drawer	23" up

Installation sequence:

1. Mark horizontal line at slide position on cabinet side 2. Verify line is level with 4' level 3. Position cabinet-mount slide component on line 4. Slide front edge flush with cabinet front 5. Drill pilot holes 6. Drive screws to secure slide 7. Check slide is level, adjust if needed 8. Repeat on opposite side at EXACT same height

Critical: Both slides must be at identical heights!

Step 6: Install Drawer-Side Slides

1. Separate drawer-mount component from slide 2. Position on bottom edge of drawer side 3. Front edge flush with drawer front 4. Drill pilot holes 5. Drive screws to secure 6. Repeat on opposite side 7. Both sides must be identical distance from drawer front

Step 7: Install Drawer Boxes

1. Extend cabinet slides fully 2. Tilt drawer box slightly 3. Align drawer-mount parts with cabinet slides 4. Set drawer parts onto slide rails 5. Push drawer while lowering 6. Slides should click into place 7. Test drawer operation - open and close several times

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Step 8: Attach Drawer Fronts

Drawer front preparation:

1. Sand fronts with 150 then 220 grit 2. Drill handle holes (centered, or offset slightly high) 3. Finish drawer fronts (see Chapter 11)

Installation sequence (start with bottom drawer):

1. Install drawer box in cabinet 2. Pull drawer out slightly 3. Place 1/16" spacer strips at bottom and sides of opening 4. Position drawer front against drawer box, using spacers for alignment 5. Front should overlap drawer box 1/2" all around 6. Hold in place or tape temporarily

Attachment:

1. From inside drawer, drill 2 pilot holes through box into front 2. Drive 1-1/4" screws from inside 3. Open drawer, check alignment 4. Adjust if needed (remove screws, reposition) 5. Once aligned, add 4-6 more screws 6. Remove spacers

Repeat for middle and top drawers:

- Use bottom drawer front as reference - Maintain 1/16" gap between each drawer front - Check reveals all around are consistent

Step 9: Install Drawer Pulls

1. Pulls are typically centered horizontally 2. Vertical position: centered or slightly high 3. Drill holes from front (tape to prevent tearout) 4. Install pulls with screws from inside drawer front

---

Quality Checkpoint: Drawers

Before proceeding to barn door, verify:

- [ ] All drawer boxes are square
- [ ] Drawers slide smoothly without binding
- [ ] Soft-close engages properly
- [ ] Drawer fronts have consistent 1/16" reveals
- [ ] Pulls are aligned and secure

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Chapter 7: Barn Door Section

Barn Door Specifications

Dimension	Measurement
Width	30"
Height	35"
Thickness	3/4" plywood + 3/4" trim = 1-1/2"

Part 1: Build the Door Panel

Step 1: Verify Panel is Square

1. Measure diagonals of 30" x 35" panel 2. Must be equal within 1/16" 3. If not square, trim with circular saw

Step 2: Sand Panel

1. Sand both faces with 120 grit, then 150 grit 2. Sand all edges smooth 3. Mark which face is "out" (living room side)

Step 3: Build Perimeter Frame

Cut frame pieces (1x4):

- Top: 30" with 45-degree miters both ends - Bottom: 30" with 45-degree miters both ends - Left: 35" with 45-degree miters both ends - Right: 35" with 45-degree miters both ends

Attach frame:

1. Dry fit frame around panel edges 2. Miters should meet cleanly at corners 3. Frame should be flush with panel edges 4. Apply wood glue to back of top frame piece 5. Position on panel, flush with edge 6. Brad nail every 6-8" through frame into panel edge 7. Repeat for bottom, left, right 8. Clamp corners if miters have gaps 9. Wipe glue squeeze-out

Step 4: Create X-Diagonal Trim

Measure and cut diagonals:

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1. Measure interior of frame (inside the 1x4 border) 2. Mark X from corner to corner 3. Place 1x4 from top-left to bottom-right 4. Mark where it meets frame edges 5. Cut angle on miter saw (approximately 40-45 degrees) 6. Test fit, trim if needed 7. Repeat for second diagonal (top-right to bottom-left)

Attach diagonals:

1. Decide which diagonal goes on top at crossing point 2. Apply glue to back of first diagonal 3. Position in place, corner to corner 4. Brad nail every 8-10" 5. Apply glue to second diagonal 6. Position (overlapping first at center) 7. Brad nail every 8-10" 8. Nail through both pieces at crossing

Step 5: Fill and Sand

1. Fill nail holes with wood filler 2. Let dry, sand smooth 3. Sand entire door assembly with 220 grit 4. Ease all sharp edges

---

Part 2: Install Barn Door Hardware

Step 1: Unpack and Review Hardware

Kit should include:

- Track rail (72") - Two roller hangers - Floor guide bracket - Soft-close damper (if equipped) - Mounting hardware

Step 2: Determine Track Position

Track mounting location:

- Track mounts to living room panel (cabinet face) - Height: 2" above the top edge of the cabinet box (NOT above countertop) - Measurement: 36-1/2" from cabinet bottom (34-1/2" cabinet height + 2" = 36-1/2") - Track length: Trim to 60" (provides 30" clear opening)

Track centering:

- Door slides LEFT to open - Track center should be ~15" left of center cabinet - This allows door to fully clear the opening

Step 3: Install Track Rail

1. Mark horizontal line at track height (use laser or 4' level) 2. Position track on line 3. Mark mounting hole locations 4. Pre-drill pilot holes through living room panel 5. Drive mounting screws (ensure screws penetrate cabinet structure) 6. Verify track is perfectly level

Critical: If track is not level, door will drift!

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Step 4: Attach Rollers to Door

1. Position roller brackets on top edge of door 2. Space evenly: 4-6" from each side edge 3. Center on door thickness 4. Pre-drill pilot holes 5. Attach brackets with provided screws 6. Verify rollers spin freely

Step 5: Hang Door on Track

1. Get helper to support door 2. Tilt door slightly 3. Hook rollers over track rail 4. Lower door to vertical 5. Check door is plumb (use level) 6. Adjust roller height if needed (most have adjustment screws) 7. Test sliding - should glide smoothly

Step 6: Install Floor Guide

1. Close door completely 2. Position floor guide at bottom center of door 3. Guide should loosely capture door bottom 4. Mark screw locations 5. Mount to floor or toe kick platform 6. Test - door should slide but not swing

Step 7: Install Soft-Close Mechanism

1. Position damper per kit instructions (usually at closed end) 2. Attach to track 3. Close door, verify soft-close engages 4. Adjust engagement point if needed

Step 8: Install Door Pull

1. Position flush pull or cup pull 2. Centered horizontally on door 3. Height: 36-40" from floor 4. Mark screw holes 5. Drill from front (tape to prevent tearout) 6. Install pull

---

Quality Checkpoint: Barn Door

Before proceeding to cabinet doors, verify:

- [ ] Door panel is square and flat
- [ ] X-frame trim is secure and gaps filled
- [ ] Track is perfectly level
- [ ] Door hangs plumb
- [ ] Door slides smoothly full length
- [ ] Soft-close engages gently
- [ ] Floor guide prevents swinging
- [ ] Door covers opening completely when closed
- [ ] Pull is comfortable and secure

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Chapter 8: Doors & Hardware

Cabinet Door Specifications

Pre-made shaker doors (recommended):

- Size: 15-1/2" W x 34-1/2" H each - Quantity: 2 - Style: Full overlay shaker - Material: Paint-grade maple or alder - Source: FastCabinetDoors.com

Step 1: Prepare Doors

1. Inspect doors for defects 2. Sand lightly with 220 grit 3. Prime and paint (see Chapter 11) 4. Let cure fully before installing hardware

Step 2: Install Hinges on Doors

Hinge specifications:

- Type: Concealed (European cup style) - Opening: 110 degrees - Features: Soft-close - Finish: Matte black

Hinge positions:

- Top hinge: 3" from top of door - Bottom hinge: 3" from bottom of door

Installation:

1. Mark hinge cup positions on back of door 2. Position: 3" from top, 3" from bottom, 3/4" from edge 3. Drill 35mm (1-3/8") cup hole with Forstner bit 4. Drill to depth specified by hinge (typically 1/2") 5. Position hinge in cup hole 6. Mark screw holes 7. Drill pilot holes 8. Drive screws to secure hinge

Step 3: Install Hinge Plates in Cabinet

1. Position mounting plates on cabinet side 2. Typical position: Flush with front edge 3. Mark screw holes 4. Drill pilot holes 5. Drive screws to secure plate

Step 4: Attach Doors to Cabinet

1. Click hinge arms onto mounting plates 2. Close door, check alignment 3. Adjust as needed: - In/out: Screw closest to door - Side-to-side: Center screw - Up/down: Mounting plate screws

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Step 5: Adjust Doors

Common adjustments:

Problem	Solution
Door hits when closing	Adjust in/out
Gap uneven top to bottom	Adjust mounting plate up/down
Gap uneven side to side	Adjust side-to-side
Soft-close not engaging	Close door more firmly initially

Gap specifications:

- Between doors: 1/8" - Around perimeter: 1/8" - Reveals should be consistent

Step 6: Install Door Pulls

1. Position pulls on meeting edges (vertical orientation) 2. Height: Upper third of door 3. Mark hole positions 4. Drill from front (tape to prevent tearout) 5. Install pulls with screws from inside

---

Quality Checkpoint: Doors

Before proceeding to countertop, verify:

- [ ] Both doors swing freely without binding
- [ ] Soft-close engages properly
- [ ] Gaps are consistent all around
- [ ] Pulls are aligned and secure
- [ ] Doors close flush with each other

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Chapter 9: Countertop Installation

Butcher Block Specifications

Specification	Value
Type	Chevron pattern acacia
Pieces	2 slabs, 72" x 39" x 1-1/2" each
Final size	92"+ x 30"
Overhang (living room)	12" (knee space)
Overhang (kitchen)	3"

Step 1: Receive and Inspect Butcher Block

1. Inspect for damage, cracks, or defects 2. Measure actual dimensions 3. Let slabs acclimate to room temperature and humidity (48-72 hours) 4. Store flat with spacers between

Step 2: Plan the Joint

Joining two 72" slabs:

- Position joint approximately 46" from one end - Offset from center for visual interest - Joint should not fall over cabinet divider

Joint options:

- Biscuits + glue (requires biscuit joiner) - Dominos + glue (requires domino joiner) - Pocket screws from below + glue (no special tools)

Step 3: Join Butcher Block Slabs

Pocket screw method (accessible approach):

1. Position both slabs face-down on sawhorses 2. Align edges that will be joined 3. Mark for pocket holes every 6-8" along joint 4. Drill pocket holes in one slab 5. Apply generous wood glue to both joining edges 6. Clamp slabs together tightly 7. Drive pocket screws 8. Flip and check for gap at joint 9. Clamp with cauls across joint if needed 10. Let glue cure 24 hours

Biscuit/domino method:

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1. Mark biscuit/domino locations every 6" 2. Cut slots in both edges 3. Dry fit to verify alignment 4. Apply glue to slots and edges 5. Insert biscuits/dominos 6. Clamp with bar clamps and cauls 7. Let cure 24 hours

Step 4: Cut to Final Dimensions

Final dimensions:

- Length: 92" (exact cabinet length) - Depth: 30" (12" + 14" + 3" + 1")

Cutting:

1. Measure and mark cut lines 2. Use circular saw with fine-tooth blade (60+ teeth) 3. Clamp straightedge guide 4. Cut with good face DOWN 5. Sand cut edges smooth

Step 5: Sand Joint and Surface

1. Sand joint flat with 80 grit (remove any ridge) 2. Progress through 120, 150, 220 grit 3. Final sand entire surface with 220 4. Vacuum all dust 5. Wipe with tack cloth

Step 6: Cut Pop-Up Outlet Hole

Position:

- 15" from left edge - 6" from kitchen-side edge - Hole size: 3-3/4" diameter

Cutting:

1. Mark center point 2. Use 3-3/4" hole saw 3. Cut from TOP side (prevents tearout on visible surface) 4. Alternatively, drill from both sides meeting in middle 5. Sand hole edges smooth

Step 7: Attach Countertop to Cabinet

Attachment method: Z-clips or elongated screw holes

This allows wood movement across the grain while keeping countertop secure.

Z-clip installation:

1. Rout 1/4" slot in cabinet top rails (or use pre-cut slot) 2. Position countertop on cabinet 3. Center side-to-side (1" overhang each end) 4. Verify overhangs: 12" living room, 3" kitchen 5. Insert Z-clips into slots 6. Drive screws up through clips into countertop 7. Space clips every 12-16"

Alternative - elongated screw holes:

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1. Drill elongated (oval) holes through cabinet top 2. Holes run perpendicular to wood grain 3. Drive screws through holes into countertop 4. Don't overtighten - allow movement

Step 8: Finish Countertop

Apply Rubio Monocoat (do AFTER installation for best results):

1. Vacuum and tack cloth surface 2. Apply small amount to white Scotch-Brite pad 3. Work in 18" x 18" sections 4. Rub into grain thoroughly 5. Wait 3-5 minutes 6. Wipe off ALL excess with clean cotton cloth 7. Buff with fresh cloth 8. Continue until entire surface covered 9. Let cure: 24-36 hours light use, 5-7 days full cure

---

Quality Checkpoint: Countertop

Before proceeding to electrical, verify:

- [ ] Joint is flat and invisible (or minimal)
- [ ] Surface is smooth (no scratches or defects)
- [ ] Countertop is level front-to-back
- [ ] Overhangs are correct (12" living room, 3" kitchen)
- [ ] Pop-up outlet hole is clean and correctly positioned
- [ ] Countertop is securely attached but can move with humidity
- [ ] Finish is even with no excess residue

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Chapter 10: Electrical & Features

Overview

This chapter covers: 1. Pop-up outlet installation 2. LED lighting system 3. Foot rail installation

Important: Turn off power at breaker before any electrical work. Verify dead circuit with voltage tester.

Part 1: Pop-Up Outlet Installation

Specifications

Feature	Value
Model	Lew Electric PUR20-BK-GFI-2USB-AC
Outlets	2 x 20A GFCI
USB ports	1 USB-A, 1 USB-C
Cutout	3-3/4" diameter
Depth	5-1/2" below countertop

Step 1: Verify Cutout

1. Pop-up hole already cut (Chapter 9) 2. Test fit pop-up unit in hole 3. Should drop in smoothly 4. Mark mounting screw locations

Step 2: Run Power Cable

Power source options:

- Tap existing kitchen circuit (must be 20A) - Run new dedicated circuit from panel

Wire path:

1. From power source to junction box (inside drawer cabinet) 2. From junction box up through cabinet to countertop hole 3. Use 12/2 NM-B Romex

Installation:

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1. Turn off power at breaker 2. Verify dead with voltage tester 3. Install junction box inside cabinet 4. Run Romex from source to junction box 5. Run Romex from junction box to countertop hole 6. Secure cable with staples every 4 feet

Step 3: Wire Pop-Up Outlet

1. Strip cable sheathing and wire ends 2. Connect wires per outlet instructions: - Black (hot) to brass terminal - White (neutral) to silver terminal - Green/bare (ground) to green terminal 3. Verify GFCI load vs line orientation 4. Secure all connections

Step 4: Install Pop-Up Unit

1. Lower pop-up into hole 2. Attach mounting screws 3. Test operation (push down to close, press button to pop up) 4. Turn power on 5. Test GFCI button (should trip and reset) 6. Test outlets with plug-in tester

---

Part 2: LED Lighting System

Zone 1: Under-Overhang Strip

Specifications:

- Location: Under 3" counter overhang (living room side) - Length: 92" (full width) - Color: 3000K warm white - Control: Inline dimmer

Zone 2: Inside-Cabinet Strips

Specifications:

- Location: Under cabinet top and upper shelf (barn door section) - Length: 2 x 28" strips - Control: Motion sensor (auto on/off)

Step 1: Install Aluminum Channels

Zone 1 (under overhang):

1. Cut 8ft aluminum channel to 92" 2. Position under counter overhang, against cabinet face 3. Mark mounting hole locations 4. Drill pilot holes 5. Attach with screws

Zone 2 (inside cabinet):

1. Cut channels to fit under top and shelf 2. Mount inside barn door section 3. Position to illuminate interior when door opens

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Step 2: Install LED Strips

1. Cut LED strip to length (cut only at marked points) 2. Peel adhesive backing 3. Press strip into aluminum channel 4. Connect strips with solderless connectors

Step 3: Install Power Supply

Location: Behind bottom drawer (removable for service)

1. Mount power supply to cabinet back 2. Connect 120V input (from junction box) 3. Connect 24V output to LED strips

Step 4: Wire Connections

Zone 1:

1. Run 18 AWG wire from power supply to Zone 1 strip 2. Install inline dimmer in accessible location 3. Connect dimmer between power supply and strip

Zone 2:

1. Run 18 AWG wire from power supply through divider hole 2. Install motion sensor at barn door opening 3. Wire: Power supply -> Motion sensor -> LED strips

Step 5: Test and Adjust

1. Test Zone 1: Verify dimmer works through full range 2. Test Zone 2: Open barn door, verify motion sensor triggers 3. Adjust motion sensor sensitivity if needed 4. Secure all wires with adhesive clips

---

Part 3: Foot Rail Installation

Specifications

Feature	Value
Diameter	2" OD
Material	304 stainless steel
Finish	Matte black powder coat
Length	92" (cut from 96" tube)
Height	6" from floor

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Step 1: Cut Foot Rail to Length

1. Measure 92" on 96" tube 2. Mark cut line all around 3. Cut with pipe cutter or hacksaw 4. Deburr inside and outside edges 5. Touch up cut end with matte black paint if needed

Step 2: Install Brackets

Bracket positions:

- Left: 3" from left edge - Center: 46" (centered) - Right: 89" from left edge

Installation:

1. Mark bracket positions on toe kick face 2. Verify backing blocks are behind each position 3. Drill pilot holes through toe kick into backing 4. Attach brackets with 3" screws 5. Verify brackets are level (use straight rail as reference)

Step 3: Install Foot Rail

1. Set rail into brackets 2. Tighten set screws to secure 3. Verify rail is level 4. Test stability (step on rail firmly) 5. Adjust if needed

---

Quality Checkpoint: Electrical & Features

Before proceeding to finishing, verify:

- [ ] Pop-up outlet works (both outlets tested)
- [ ] GFCI trips and resets properly
- [ ] USB ports charge devices
- [ ] Zone 1 LEDs light up and dim smoothly
- [ ] Zone 2 LEDs activate with motion sensor
- [ ] All wires are secured and concealed
- [ ] Foot rail is level and stable
- [ ] No loose connections or exposed wires

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Chapter 11: Finishing

Overview

Finishing sequence: 1. Prime and paint cabinet components 2. Stain and clear coat barn door X-frame 3. Finish butcher block (covered in Chapter 9)

Timeline: Allow 2-3 weeks for finishing (paint cure times)

Part 1: Cabinet Painting

Materials

- Zinsser B-I-N Shellac-Based Primer (1 quart) - Benjamin Moore Advance Satin Paint (2 gallons) - Color: Benjamin Moore Hale Navy (HC-154)

Step 1: Surface Preparation

1. Sand all surfaces with 150 grit, then 220 grit 2. Fill any holes, gaps, or defects with wood filler 3. Let filler dry, sand flush 4. Vacuum all dust 5. Wipe with tack cloth 6. Wipe with denatured alcohol, let dry 15 minutes

Step 2: Prime

Environment: 50-85F, 40-70% humidity, well-ventilated

1. Stir primer thoroughly (don't shake) 2. Apply with brush to edges and details 3. Roll flat surfaces with foam roller 4. Tip off with brush in grain direction 5. Let dry 45 minutes 6. Light sand with 320 grit 7. Vacuum and tack cloth 8. Apply second coat to edges/end grain if needed

Step 3: Paint First Coat

1. Stir paint thoroughly 2. Apply with "brush and roll" technique: - Cut in edges with brush - While still wet, roll flat surfaces - Tip off with nearly dry brush 3. Work in 3-4 foot sections 4. Keep a wet edge 5. Let dry 16 hours (Benjamin Moore Advance)

Step 4: Sand Between Coats

1. Light sand with 320 grit 2. Remove dust nibs and brush marks 3. Don't sand through to primer 4. Vacuum and tack cloth

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Step 5: Paint Final Coat

1. Apply same technique as first coat 2. This is your final visible coat - take time 3. Let dry 24-48 hours before handling 4. Full cure: 7-14 days

---

Part 2: Wood Accent Finishing

Materials

- Minwax Pre-Stain Wood Conditioner - Minwax Golden Oak Stain (210B) - Minwax Fast-Drying Polyurethane Satin

Surfaces to Stain

- Barn door X-frame trim - Living room panel X-frame trim (if wood, not painted)

Step 1: Prepare Wood

1. Sand with 120 grit, 150 grit, 220 grit 2. Raise grain: Mist with water, let dry 2 hours 3. Sand again with 220 grit (removes raised fibers)

Step 2: Apply Pre-Stain Conditioner

1. Apply conditioner with brush or rag 2. Wait 5-15 minutes (don't let dry completely) 3. Wipe off excess

Step 3: Apply Stain

1. Apply stain with brush or rag 2. Work in manageable sections 3. Wait 5-10 minutes (longer = darker) 4. Wipe off excess with clean cloth 5. Work with the grain 6. Let dry 8+ hours

Step 4: Apply Clear Coat

First coat:

1. Stir polyurethane (never shake) 2. Apply thin coat with quality brush 3. Brush with the grain 4. Don't overwork 5. Let dry 3-4 hours

Second coat:

1. Light sand with 320 grit 2. Tack cloth 3. Apply thin coat 4. Let dry 3-4 hours

Third coat (recommended):

1. Light sand with 320 grit 2. Tack cloth 3. Apply final coat 4. Let dry 24 hours 5. Full cure: 3-7 days

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Quality Checkpoint: Finishing

Before declaring project complete, verify:

- [ ] Paint is smooth with no brush marks, drips, or orange peel
- [ ] Color is consistent across all surfaces
- [ ] Stained wood has even color and full coverage
- [ ] Clear coat is smooth and protected
- [ ] All nail holes and gaps are filled
- [ ] Touch-ups are blended and invisible
- [ ] Full cure time has elapsed before heavy use

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Appendix A: Troubleshooting

Cabinet Issues

Problem: Cabinet not square

Cause: Assembly error or back not holding square **Fix:**

- Measure diagonals - rack cabinet until equal - Remove and reinstall back panel - Add corner braces if needed

Problem: Drawers bind or stick

Causes:

- Slides not at same height - Drawer box not square - Slide clearance insufficient

Fixes:

- Re-measure slide heights, adjust - Check drawer box diagonals - Sand drawer sides if too tight

Problem: Doors don't close evenly

Cause: Hinge adjustment needed **Fix:**

- Use three adjustment screws on hinges - Adjust until gaps are even - Most fixes take 1/8 turn at a time

---

Barn Door Issues

Problem: Door drifts open or closed

Cause: Track not level **Fix:**

- Check track with level - Shim behind track to level - Even 1/8" makes a difference

Problem: Soft-close not engaging

Causes:

- Damper positioned incorrectly - Door not pushed far enough

Fixes:

- Adjust damper position - Push door more firmly to engage

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Problem: Door swings away from cabinet

Cause: Floor guide not installed or too loose **Fix:**

- Install or adjust floor guide - Guide should capture door but allow sliding

---

Finish Issues

Problem: Brush marks in paint

Causes:

- Paint drying too fast - Overworking the paint - Poor quality brush

Fixes:

- Work in cooler temperatures - Apply and leave alone - Use quality brush (Purdy, Wooster)

Problem: Paint peeling

Causes:

- Poor surface prep - Incompatible primer - Applied too thick

Fixes:

- Sand to bare wood - Prime with shellac-based primer - Apply thin coats

Problem: Stain blotchy

Cause: Inconsistent wood absorption **Fix:**

- Always use pre-stain conditioner on soft woods - Apply gel stain instead for more control

---

Electrical Issues

Problem: GFCI keeps tripping

Causes:

- Ground fault somewhere in circuit - Defective outlet - Moisture in outlet

Fixes:

- Check all connections for bare wire contact - Test outlet in different location - Ensure outlet is dry before testing

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Problem: LEDs flickering

Causes:

- Loose connection - Underpowered supply - Incompatible dimmer

Fixes:

- Check and secure all connections - Verify power supply wattage exceeds load - Use LED-compatible dimmer

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Appendix B: Quick Reference Cards

Dimension Cheat Sheet

Item	Dimension
Total length	92"
Total height	40"
Cabinet height	34-1/2"
Toe kick height	4"
Countertop thickness	1-1/2"
Cabinet depth	14"
Countertop depth	30"
Section 1 width	30"
Section 2 width	30"
Section 3 width	32"
Drawer box (WxHxD)	29-1/2" x 10" x 13"
Drawer front	30" x 10-1/2"
Barn door	30" x 35"
Cabinet doors (each)	15-1/2" x 34-1/2"

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Screw Size Guide

Application	Screw Type	Size
3/4" plywood pocket	Coarse thread	1-1/4"
1/2" plywood pocket	Coarse thread	5/8"
Toe kick assembly	Construction	2-1/2"
Cabinet to wall	Cabinet	3"
Drawer front to box	Wood	1-1/4"
Trim to panel	Brad nail	1-1/4"

Phase Checklist

Phase 1: Platform

- [ ] Cut 2x4 frame members
- [ ] Assemble frame
- [ ] Install foot rail backing
- [ ] Install plywood top
- [ ] Level and secure

Phase 2: Cabinet Boxes

- [ ] Cut all plywood parts
- [ ] Drill pocket holes
- [ ] Assemble Section 1
- [ ] Assemble Section 2
- [ ] Assemble Section 3
- [ ] Install backs
- [ ] Join sections

Phase 3: Drawers

- [ ] Cut drawer parts
- [ ] Assemble drawer boxes

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Install slides in cabinet

Install slides on drawers

Install drawer boxes

Attach drawer fronts

Install pulls

Phase 4: Barn Door

Build door panel

Attach X-frame trim

Install track

Attach rollers to door

Hang door

Install floor guide

Install soft-close

Install pull

Phase 5: Cabinet Doors

Prepare doors

Install hinges

Attach doors

Adjust alignment

Install pulls

Phase 6: Countertop

Acclimate butcher block

Join slabs

Cut to size

Cut outlet hole

Attach to cabinet

Apply finish

Phase 7: Electrical

Install junction box

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Run 120V wiring

Install pop-up outlet

Install LED power supply

Install LED strips

Install motion sensor

Test all systems

Phase 8: Foot Rail

Cut rail to length

Install brackets

Install rail

Test stability

Phase 9: Finishing

Sand all surfaces

Prime cabinets

Paint first coat

Sand between coats

Paint final coat

Stain wood accents

Apply clear coat

Touch up as needed

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Appendix C: Resources

Product Links

Hardware

- **Drawer slides:** [Liberty Hardware at Home Depot](https://www.homedepot.com/p/Liberty-14-in-Full-Extension-Ball-Bearing-Side-Mount-Drawer-Slide-1-Pair-D80618C-ZP-W/202189064) - **Barn door kit:** [JELD-WEN DesignGlide at Lowe's](https://www.lowes.com/pd/JELD-WEN-DesignGlide-Barn-Door-Hardware/5001836563) - **Concealed hinges:** [Blum at CabinetParts.com](https://www.cabinetparts.com/p/blum-cabinet-hinges-compact-series-71B3790-BLK) - **Pre-made doors:** [FastCabinetDoors.com](https://www.fastcabinetdoors.com)

Electrical

- **Pop-up outlet:** [Kitchen Power Pop Ups](https://www.kitchenpowerpopups.com/products/lew-electric_pur20-bk-gfi-2usb-ac) - **LED strips:** [HitLights](https://www.hitlights.com) - **Foot rail:** [Top Hardware](https://www.tophardware.com)

Finishing

- **Benjamin Moore Advance:** Available at Benjamin Moore stores - **Rubio Monocoat:** [Amazon](https://www.amazon.com/Rubio-Monocoat-Oil-Plus-Pure/dp/B01MXHX1YY)

Video Tutorial Recommendations

Cabinet Building

- **Steve Ramsey - Woodworking for Mere Mortals:** Basic cabinet construction - **Jay Bates:** Pocket hole cabinet techniques - **Fix This Build That:** Face frame cabinet assembly

Drawer Building

- **Kreg Tool Company:** Official pocket hole drawer tutorials - **Ana White:** Simple drawer construction

Barn Door

- **The Home Depot:** Barn door installation guide - **Lowe's:** How to install barn door hardware

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Finishing

- **Finish Carpentry TV:** Cabinet painting techniques - **Peter Millard:** Professional brush techniques - **Rubio Monocoat:** Official application videos

Vendor Contacts

- **FastCabinetDoors.com:** (877) 669-3667 - **Benjamin Moore Store Locator:** benjaminmoore.com/en-us/store-locator - **Lew Electric:** (800) 883-1002

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Appendix D: Technical Diagrams

The following technical diagrams are available in the `diagrams/` folder:

Diagram	File	Purpose
Pocket Hole Placement	`pocket-hole-placement.svg`	Shows edge distances, spacing patterns, and joint configurations
Electrical Wire Routing	`electrical-routing.svg`	Complete 120V and low-voltage wire paths, hole positions H1-H6
Cabinet Section Connections	`cabinet-sections.svg`	How the three sections connect with shared dividers
Toe Kick Platform	`toe-kick-platform.svg`	2x4 frame layout, plywood top, leveling pad positions

How to Use These Diagrams

1. **Open SVG files** in any web browser for full-size viewing 2. **Print for shop reference** - SVG scales cleanly to any paper size 3. **Reference during assembly** - Each diagram addresses specific "how do I...?" questions

Living Room Panel

For complete Living Room Panel (92" x 34-1/2" X-frame panel) construction and installation, see: - **LIVING-ROOM-PANEL-CHAPTER.md** - Full guide with materials, steps, and troubleshooting

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Final Notes

Congratulations on completing your Kitchen Bar Cabinet! This project combines multiple woodworking disciplines - cabinet making, door construction, finishing, and basic electrical work. The result is a custom piece of furniture that transforms your space.

Maintenance Tips

1. **Weekly:** Wipe countertop with damp cloth 2. **Monthly:** Test GFCI outlet, dust LED strips 3. **Quarterly:** Check foot rail brackets for tightness 4. **Annually:** Refresh butcher block finish, touch up paint as needed

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If You Need Help

- **Woodworking questions:** r/woodworking, r/DIY - **Electrical questions:** Consult a licensed electrician - **Finishing questions:** r/finishing, paint store experts

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Build Manual Version 1.1 (Revised) Kitchen Bar Cabinet Project January 2026

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Appendix D: Technical Diagrams

This appendix contains all technical diagrams from this manual for quick reference.

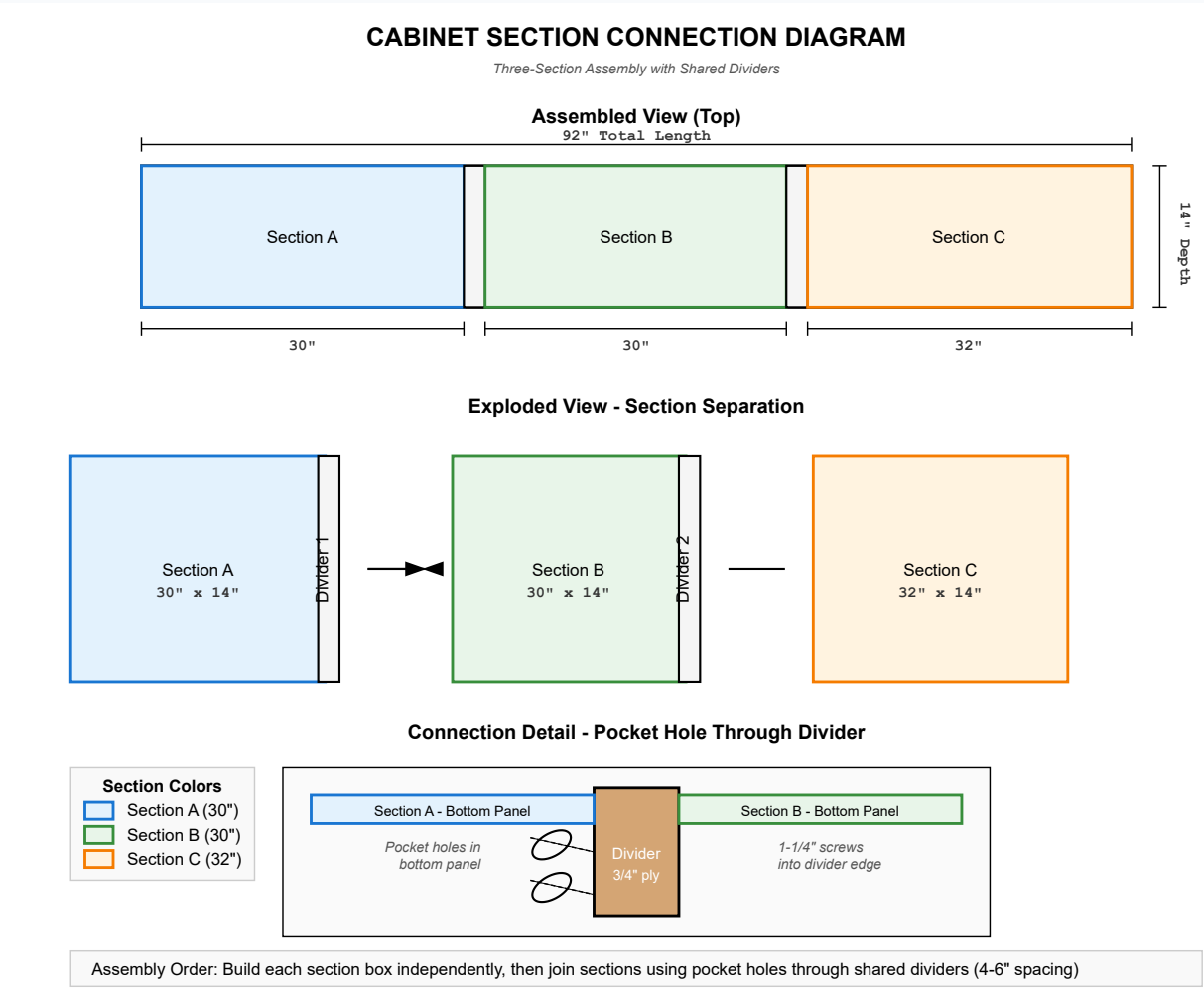

Figure D.1: Cabinet Sections Overview

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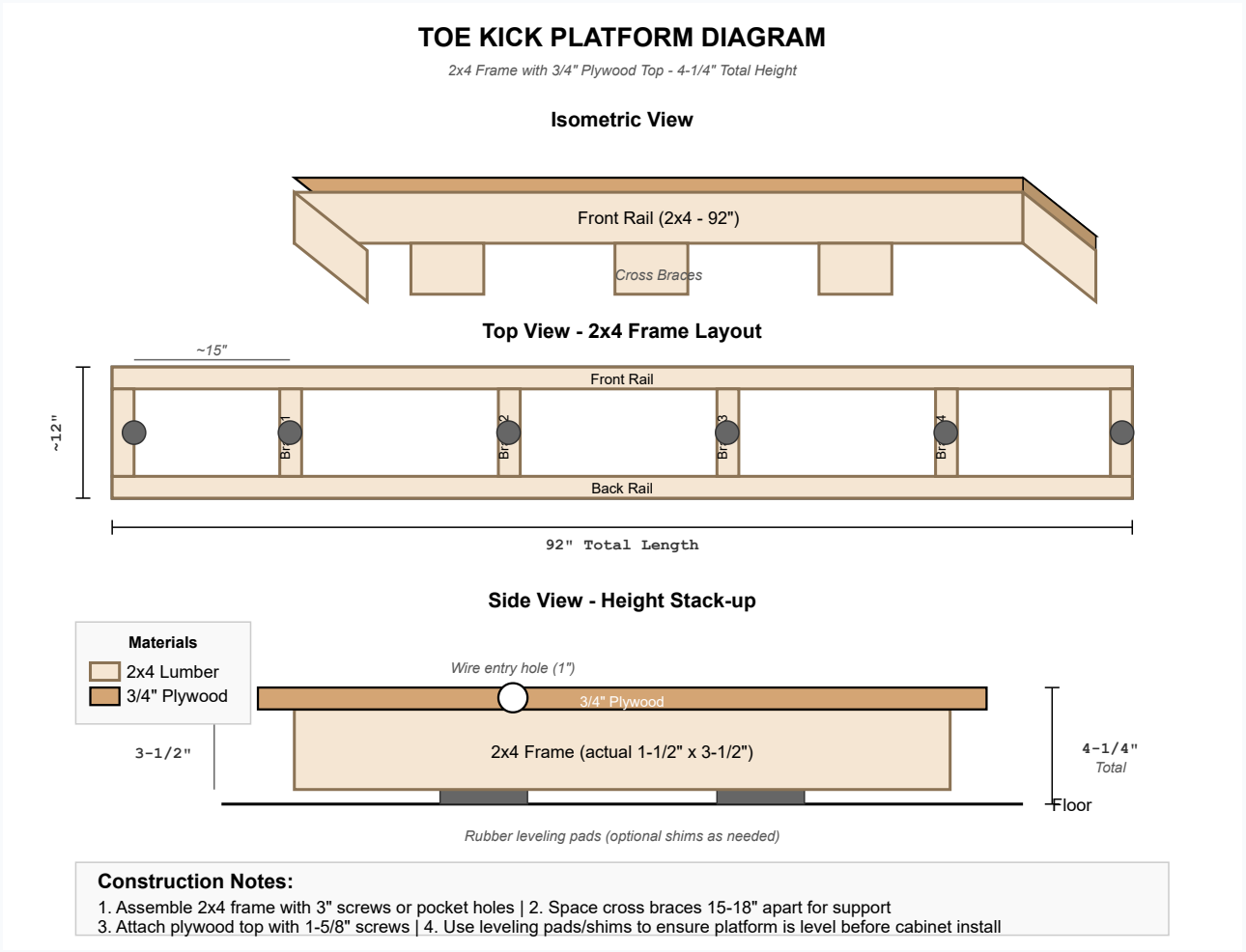

Figure D.2: Toe Kick Platform Construction

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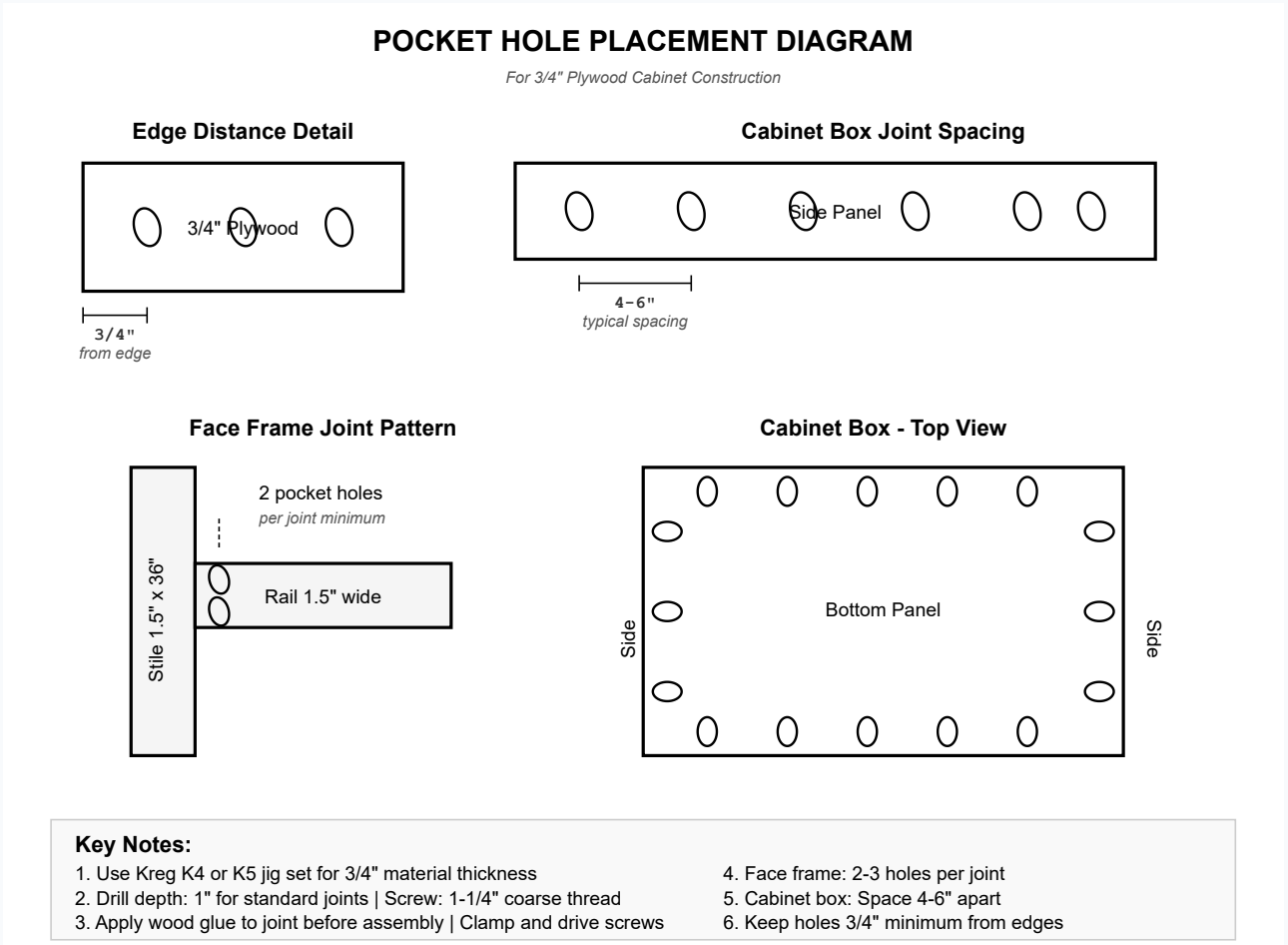

Figure D.3: Pocket Hole Placement Guide

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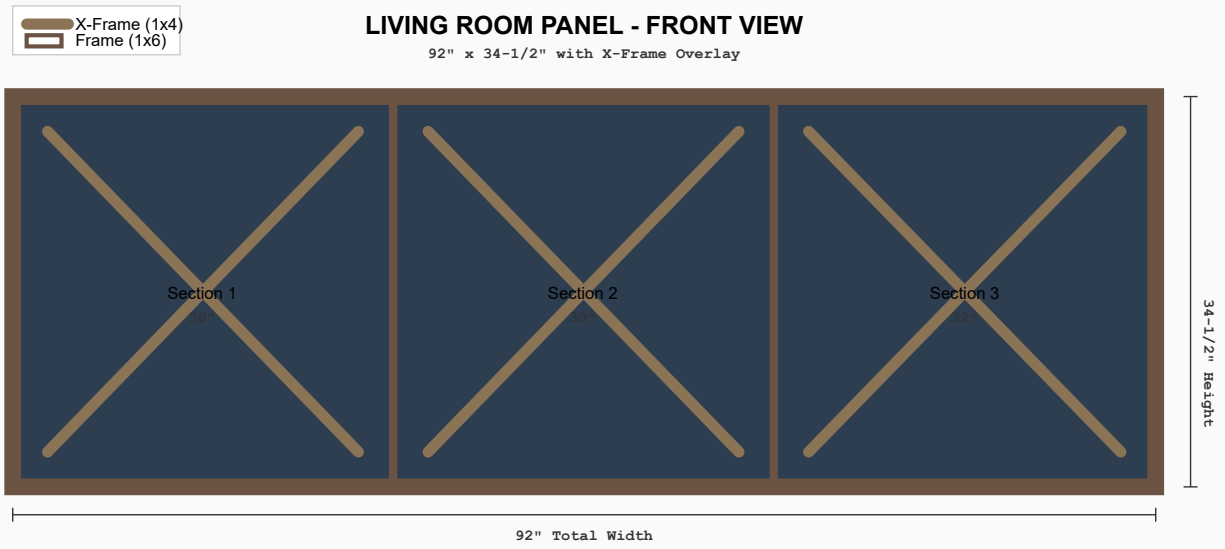

Figure D.4: Living Room Panel Front View

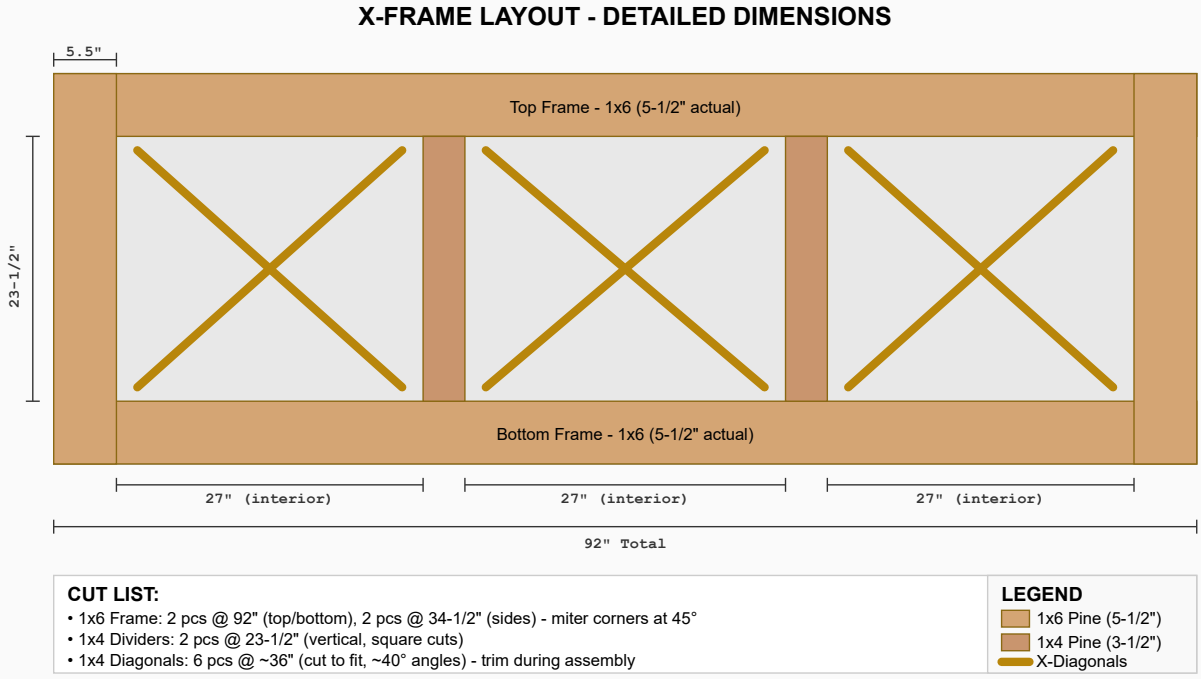

Figure D.5: X-Frame Layout Details

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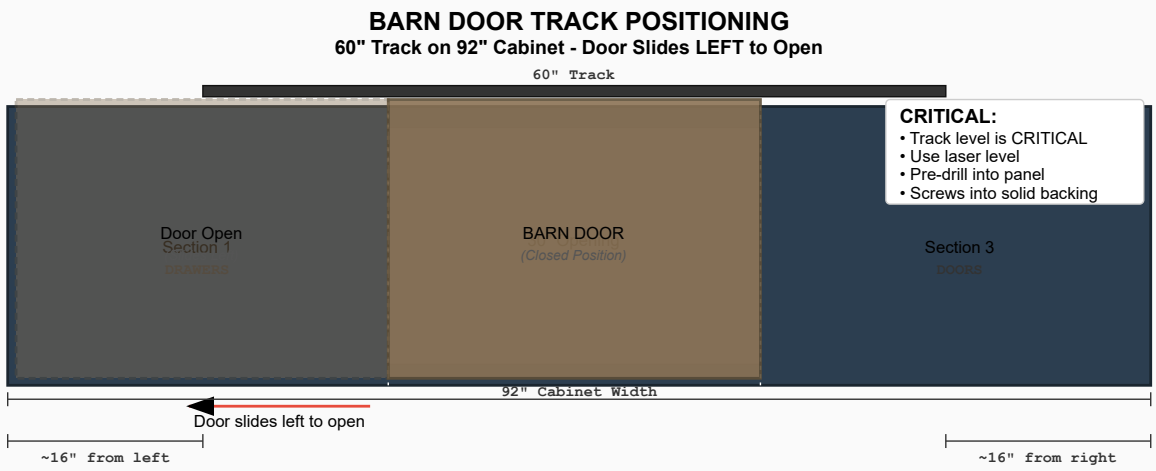

Figure D.6: Barn Door Track Positioning

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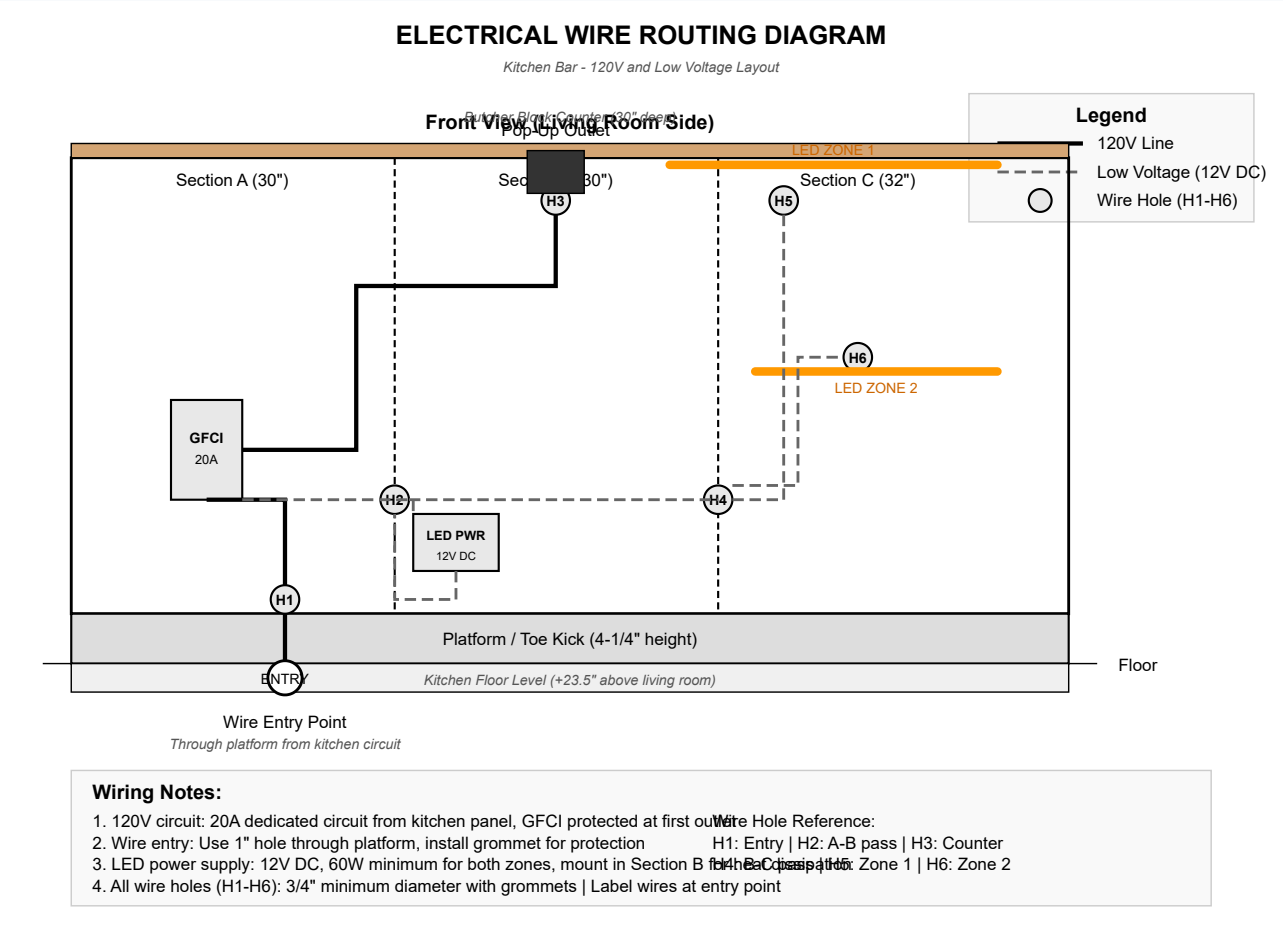

Figure D.7: Electrical Routing Diagram