

Rolling TV stand

Source-generated guide, exported for portfolio review

This PDF is a new presentation export of the existing project-specific guide. Instruction text and part data below were evaluated from the preserved source, not invented by this export. Figures are captures of the original CAD viewer. Layout, cover, provenance and editorial notices were added for this package.



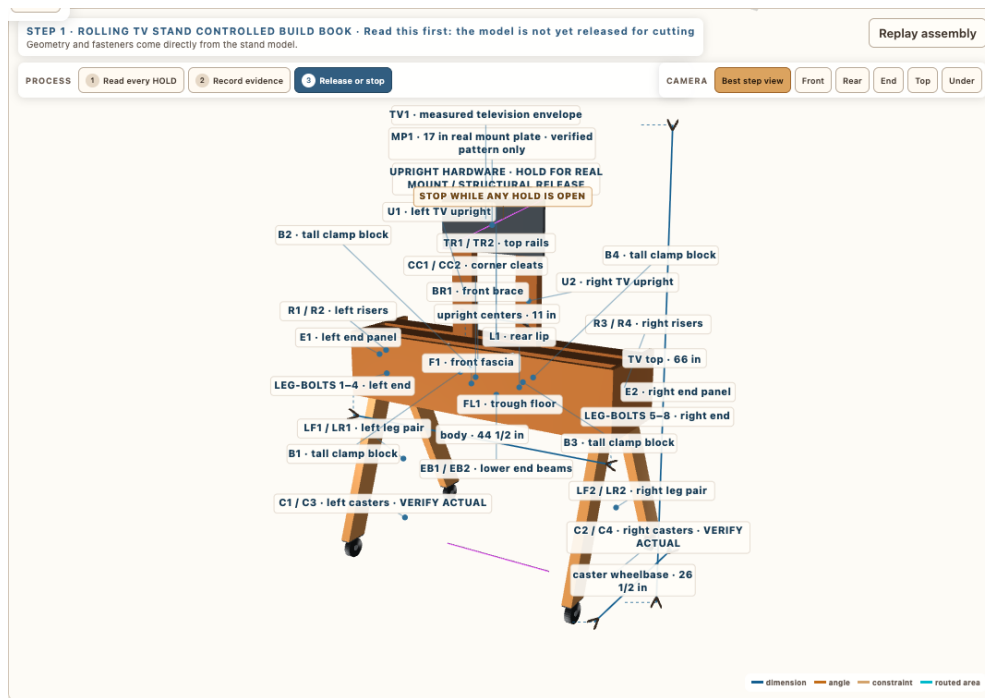
Status: generated and checked against the selected CAD configuration. Not validated by a documented physical build. Geometry or test success is not structural certification or permission to cut.

Coffee-table caster dimensions are placeholders. TV-stand guide retains explicit release HOLDS. Read each original check and hold before evaluating usability.

Read this first: the model is not yet released for cutting

Tools: Manual, pencil, measurement worksheet, qualified reviewer

Setup: Work at the current revision only. Record every measured value and reviewer decision before releasing stock.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

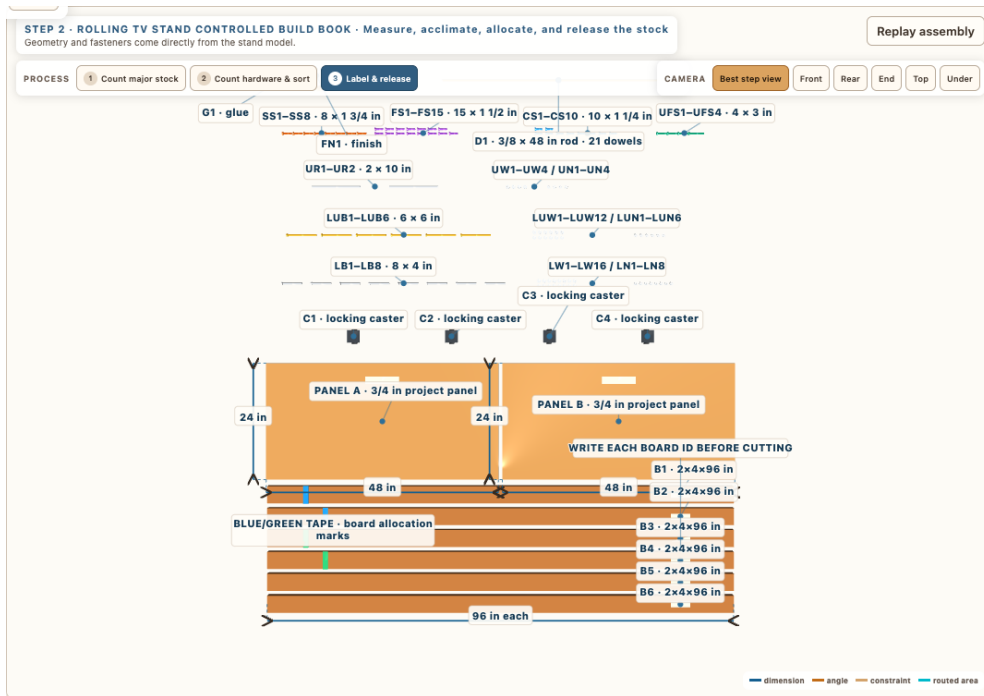
Parts / constraints: Target body 44½" W × 13½" D × 10¼" H; Target TV top 66"; TV center 53"; mount center 52"; Red HOLD gates must be closed before Step 2

1. Read all steps before buying more hardware or cutting wood.
 2. HOLD — REAL TV / MOUNT: record TV weight, VESA hole rectangle, TV-side bracket hook offset, plate height, every plate hole, required fasteners, and the mount maker's instructions. The known 44½" × 26" TV envelope, 17" plate width, 11" horizontal hole spacing, and approximately 12" screen-bottom-to-mount-center are not the complete mounting geometry.
 3. HOLD — REAL CASTERS: record overall mounting height, plate length/width/thickness, four-hole coordinates, swivel offset and full swivel envelope, lock access, load rating, and the manufacturer's pilot/fastener requirements. Do not substitute wheel diameter for overall mounting height.
 4. HOLD — PANEL MOVEMENT: the purchased edge-glued pine/fir panels are solid wood. The current detail routes each housing 5/16" deep, engages only ¼" of FL1, leaves 1/16" clearance at the groove bottom, and keeps all four housings unglued. Obtain competent approval—or use stable plywood and regenerate the plan—before cutting or gluing.
 5. HOLD — CAPTIVE LEG HEADS: the current two-level pocket uses a round washer seat plus a fitted six-sided head recess. Prove the actual head cannot spin at final torque, or provide permanent service access, before routing E1/E2 or drilling project beams.
 6. HOLD — STRUCTURE / TIP-OVER: obtain a competent structural and stability review of the TV load path, caster feet, fasteners, and mobile tip-over behavior. The CAD collision/stability study is not an engineering certification.
 7. Write the measured values and reviewer sign-off in the checklist. When any real dimension changes, regenerate the CAD, cut list, routing map, and guide coordinates together.
- CHECK / HOLD: STOP. Do not mark or cut project stock while any HOLD gate remains open.

Measure, acclimate, allocate, and release the stock

Tools: Tape measure, calipers, straightedge, framing square, painter's tape, marker

Setup: Lay stock flat, acclimated, well lit, and supported. Use the same datum/ID system as the CAD.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: 2 project panels; 6 kiln-dried 2×4×96 boards; Board 5 = untouched replacement stock; Board 6 = test/fixture stock

1. Acclimate the wood in the build room, laid flat with spacers, before final measurement.
2. Measure actual panel thickness at several points and each board's actual thickness/width/length. Reject twist, severe bow, loose knots, checks, and splits in fastener zones.
3. Mark every face INSIDE/OUTSIDE, FRONT/REAR, LEFT/RIGHT, and the part ID using painter's tape.
4. Sort the straightest stock into the exact allocation shown. Mark Board 5 REPLACEMENT—DO NOT CUT. Mark Board 6 TEST/FIXTURE—NO PROJECT PARTS.
5. Inventory every physical fastener against the approved drilling map; a “box” is not a count.

CHECK / HOLD: Release only after the stock counts match, actual thicknesses are in the CAD, and all five cover-page HOLD gates are signed off.

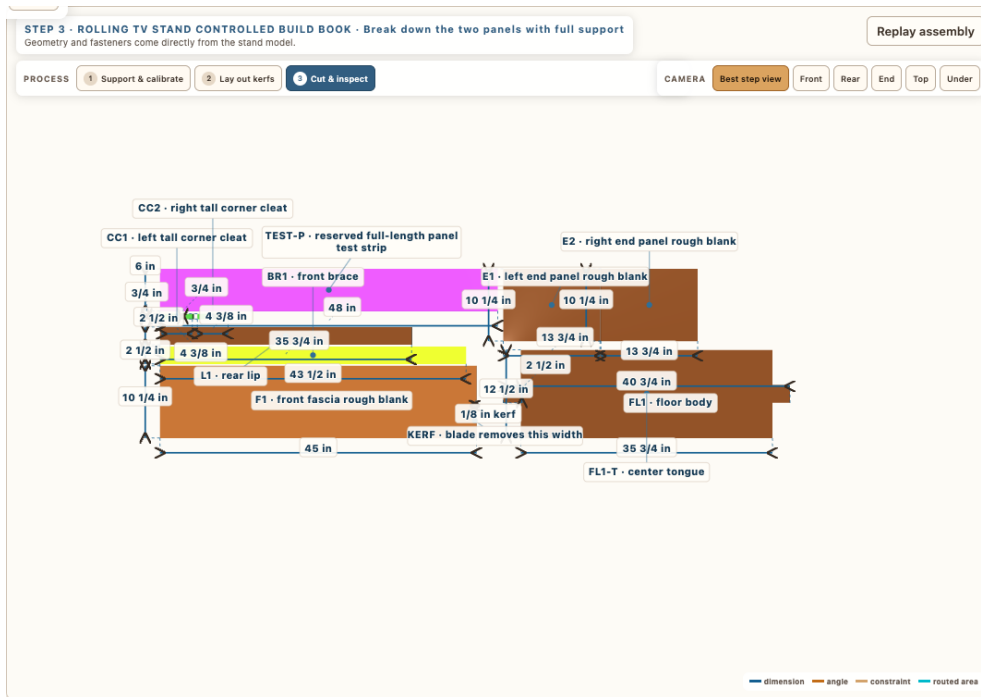
ID / stock	Description / feature	Qty	Dimensions / specification
Panel A	ROUGH F1 45" × 10¼" × ¾"; BR1 43½ × 2½; L1 35¾ × 2½; ¾-wide CC band; preserve TEST-P 48" × 6" × ¾"	1	24 × 48 × actual thickness
Panel B	FL1 in 40¾ × 12½ envelope; ROUGH E1/E2 13¾" × 10¼" × ¾" each, then bevel to 13½ final	1	24 × 48 × actual thickness
Board 1	TR1 43¾ + TR2 43¾	1	2×4×96 nominal
Board 2	U1 31¼ + U2 31¼ + EB1 12 + EB2 12	1	2×4×96 nominal

ID / stock	Description / feature	Qty	Dimensions / specification
Board 3	LF1/LF2 27% minimum each + R1–R4 5½ each	1	2×4×96 nominal
Board 4	LR1/LR2 29 minimum each + B1–B4 7¾ each	1	2×4×96 nominal
Board 5 · REPLACEMENT	Leave completely uncut until every critical machining and complete dry-fit gate passes	1	2×4×96 nominal
Board 6 · TEST/FIXTURE	Reserve for foot carriers, counterbore/bolt trials, dowel joint, router pockets, pilot stacks, cauls, and destructive tests	1	2×4×96 nominal
Hardwood dowel rod	Cut 8 ×1½ end-frame dowels + 8 ×3 rail pins + 5 ×1¼ rear-lip dowels	1	⅜ diameter ×48 purchased; 42¼ finished used; 5¾ allowance
Leg bolts	EB→leg; two per leg	8	⅜ ×4
Leg washers / locknuts	Two washers + one nylon locknut per leg bolt	16 / 8	For ⅜ bolt
Shell screws	E1/E2→chassis; four per end	8	#10 ×1¼
BR1→rail screws	Staggered at the seven CAD axes	7	#10 ×1½
BR1→cleat screws	One per cleat	2	#8 ×1¼
Cleat→shell screws	Two into E + two into F1 per cleat	8	#8 ×1¼
Block floor screws	From open underside through FL1 into B1–B4	8	#10 ×1½
Lower upright bolts	Three rows per upright	6	⅜ ×6
Lower washers / locknuts	Two washers + one locknut per lower bolt	12 / 6	For ⅜ bolt
Upper threaded rods	One rail→upright→rail row per upright; cut and deburr	2	⅜ diameter ×10
Upper washers / locknuts	Two washers + two locknuts per rod	4 / 4	For ⅜ rod
Upright floor screws	Two from underside into each U	4	¼ ×3 structural connector screw
Caster fasteners	Four per measured plate	16	HOLD — choose after real plate/path/edge review
Mount/TV fasteners	Use only the real mount and TV maker's schedules	HOLD	Do not infer from CAD placeholder

Break down the two panels with full support

Tools: DeWalt 7¼" circular saw, sharp panel blade, clamp-edge guide, 4 clamps, rigid platform + 1" XPS, jigsaw, square, eye/hearing/dust protection

Setup: Create a rigid waist-height sacrificial platform, then cover it with continuous XPS. Confirm the blade cannot contact horses or clamps.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: Panel A allocation above; Panel B allocation above; TEST-P: preserve one full 48" x 6" Panel A strip; Maximum planning kerf 1/8"

1. Put the panel on continuous 1" XPS foam supported at standing height by a rigid sacrificial platform; never bridge an unsupported panel between two sawhorses.
2. Remove the saw battery. Set the 0° bevel, lock it, and set blade projection per the DeWalt manual—only slightly below the work. Reinstall the battery only after setup.
3. On TEST-P, measure the saw-base-to-blade offset, clamp the edge guide on the keep side, and make a straight 0° test cut. Measure the kept piece and recalibrate before project cuts.
4. Rough-cut F1 at 45", not final 44½". Rough-cut E1/E2 at 13¾", not final 13½". Preserve their bevel allowance for Step 4.
5. Cut the FL1 40¾ x 12½ bounding rectangle; mark the centered 35¾ body, jigsaw the four open-edge wastes, and square the inside shoulders or deliberately radius the mating grooves to the same router-bit radius.
6. Cut narrow CC stock only with a carrier/backer that keeps hands and the saw base safely supported. Label every cut immediately.

CHECK / HOLD: Output: rough F1/E blanks, finished FL1/L1/BR1/CC blanks, and an intact TEST-P strip. Acceptance: square, labeled, within 1/32", no blade damage to keep faces.

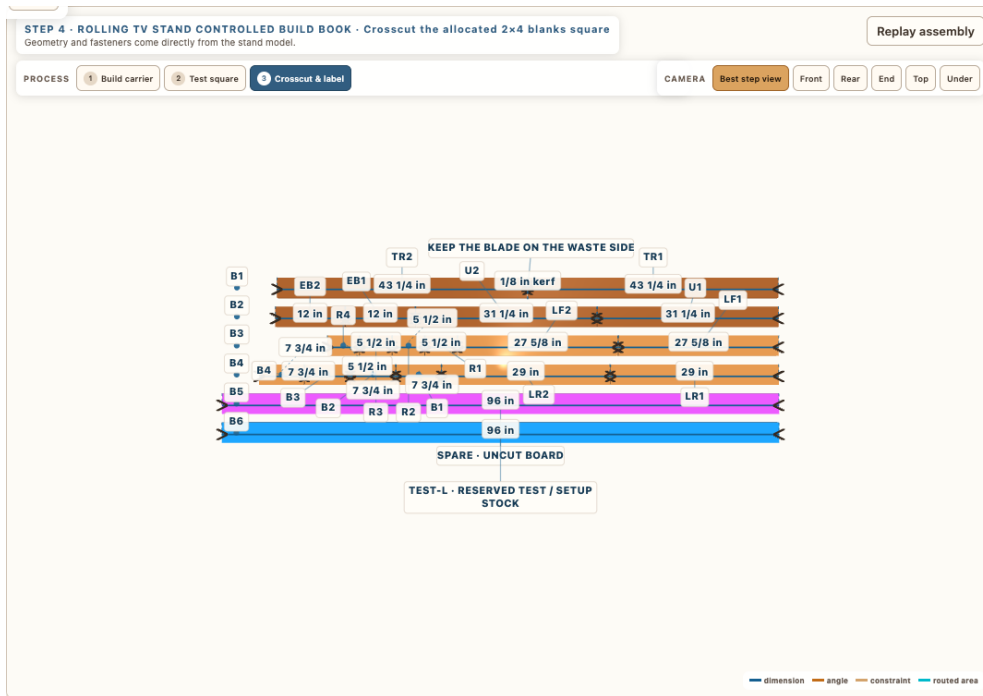
ID / stock	Description / feature	Qty	Dimensions / specification
F1 ROUGH	Front fascia blank; retain bevel allowance until Step 4	1	45" x 10¼" x ¾"

ID / stock	Description / feature	Qty	Dimensions / specification
E1/E2 ROUGH	End-panel blanks; retain front bevel allowance until Step 4	2	13 $\frac{3}{4}$ " $\times$ 10 $\frac{1}{4}$ " $\times$ $\frac{3}{4}$ "
FL1	T-shaped floor: full-depth body plus centered tongue	1	35 $\frac{3}{4}$ " $\times$ 12 $\frac{1}{2}$ " $\times$ $\frac{3}{4}$ " body; 40 $\frac{3}{4}$ " $\times$ 2 $\frac{1}{2}$ " tongue span
L1	Rear retaining lip	1	35 $\frac{3}{4}$ " $\times$ 2 $\frac{1}{2}$ " $\times$ $\frac{3}{4}$ "
BR1	Routed full-length front brace	1	43 $\frac{1}{2}$ " $\times$ 2 $\frac{1}{2}$ " $\times$ $\frac{3}{4}$ "
CC1/CC2	Tall front-corner cleats ripped from panel stock	2	4 $\frac{3}{8}$ " $\times$ $\frac{3}{4}$ " $\times$ $\frac{3}{4}$ "
TEST-P	Reserved same-panel strip for 0°/45° saw, router, glue, and finish trials	1	48" $\times$ 6" $\times$ $\frac{3}{4}$ "

Crosscut the allocated 2×4 blanks square

Tools: Circular saw at 0°, speed/framing square, crosscut carrier, clamps, tape/knife, eye/hearing protection

Setup: Clamp a carrier to the work surface so the stock, offcut, and saw shoe remain supported throughout the cut.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: Boards 1–4 = listed parts; Board 5 = untouched replacement; Board 6 = test/fixture only; Leg foot planes are NOT cut here

1. Build a simple crosscut carrier: flat sacrificial base, straight fence at 90°, and stops that keep short stock clamped while the saw base is fully supported.
2. With the battery out, set saw bevel to 0°, lock it, set safe blade projection, and mark the tested base offset. Prove a square cut on Board 6; check it from both faces with the framing square.
3. Cut the longest pieces first using the allocation table. Put the blade kerf on the waste side and support both the keep piece and offcut.
4. Leave LF blanks at least 27⁵/₈" and LR blanks at least 29". Do not add 20°/26° foot cuts.
5. Label both ends and all four faces; stack matched pairs together. Leave Board 5 uncut.

CHECK / HOLD: Output: 18 labeled blanks, reserved Board 6 fixture/test stock, and one untouched Board 5 replacement. Acceptance: pair lengths match within 1/32" and square ends show no daylight at the framing square.

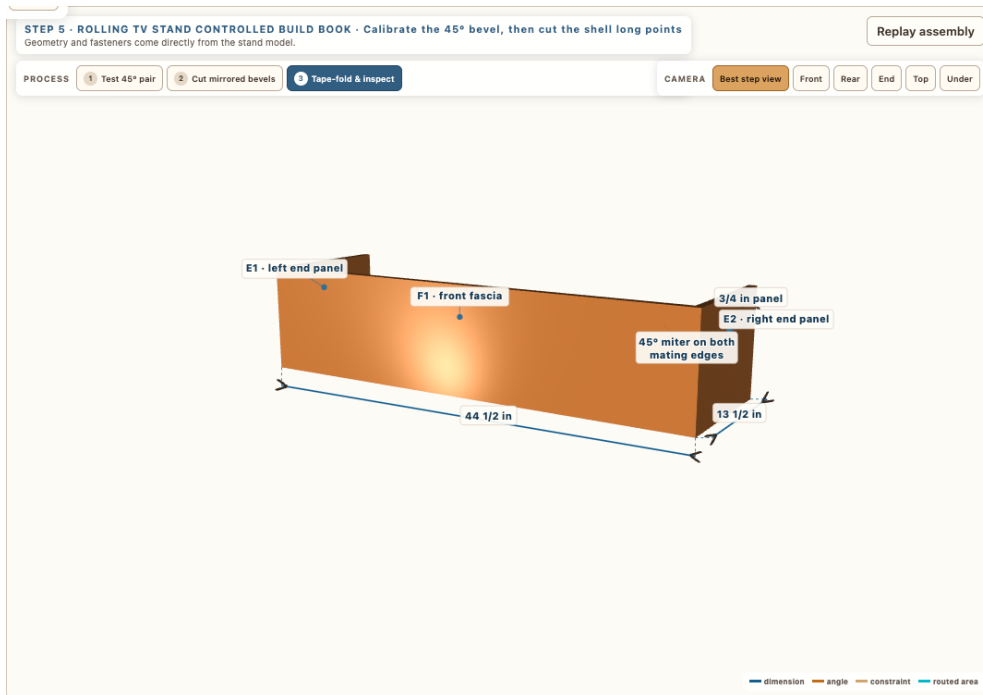
ID / stock	Description / feature	Qty	Dimensions / specification
TR1/TR2	Full-length flat top rails	2	43 ¹ / ₄ " long · 1 ¹ / ₂ " × 3 ¹ / ₂ "
U1/U2	TV uprights	2	31 ¹ / ₄ " long · 1 ¹ / ₂ " × 3 ¹ / ₂ "
LF1/LF2	Front leg minimum blanks; foot plane cut later	2	27 ⁵ / ₈ " minimum · 1 ¹ / ₂ " × 3 ¹ / ₂ "
LR1/LR2	Rear leg minimum blanks; foot plane cut later	2	29" minimum · 1 ¹ / ₂ " × 3 ¹ / ₂ "
EB1/EB2	Lower structural end beams	2	12" long · 1 ¹ / ₂ " × 3 ¹ / ₂ "

ID / stock	Description / feature	Qty	Dimensions / specification
R1–R4	End-frame vertical risers	4	5½" long · 1½" × 3½"
B1–B4	Tall upright clamp blocks	4	7¾" long · 1½" × 3½"

Calibrate the 45° bevel, then cut the shell long points

Tools: Circular saw bevel control, clamp-edge guide, same-thickness TEST-P coupons, bevel gauge/square, tape, miter cauls

Setup: Pair coupons with the same thickness and face orientation as F1/E. Re-measure the 45° guide offset after changing bevel.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: TEST-P same-thickness scrap first; F1 final 44½" between outside long points; E1/E2 final 13½" rear square edge to front outside long point

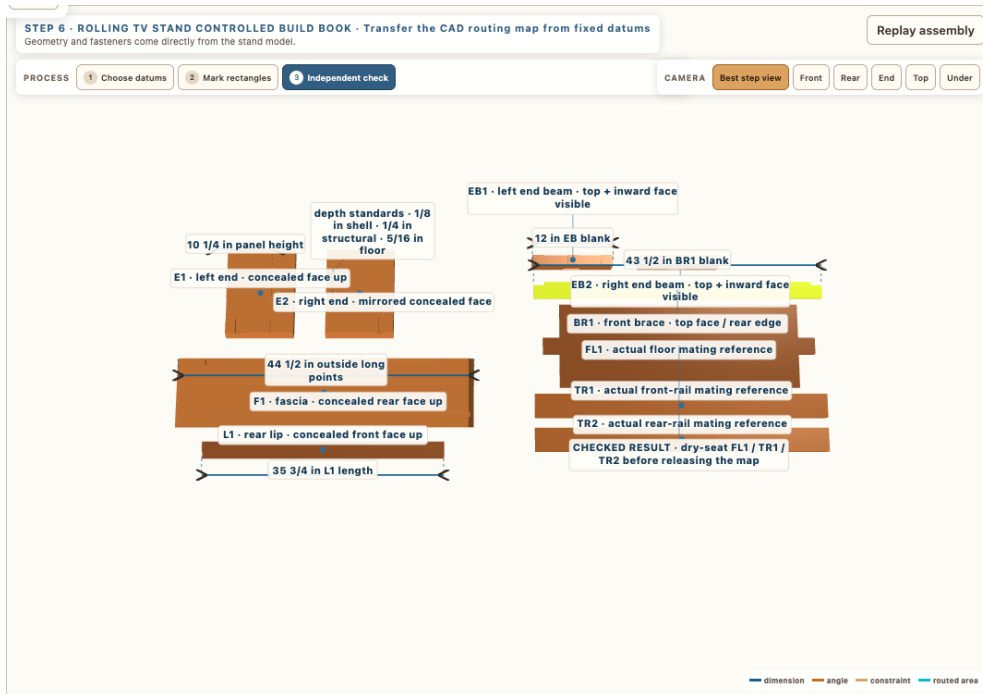
1. Make two same-thickness TEST-P coupons. Mark OUTSIDE, INSIDE, LONG POINT, SHORT POINT, and WASTE on each.
2. Remove the saw battery; set the shoe to 45° using the saw scale, lock it, then independently verify the blade-to-shoe angle with a square/bevel gauge. The guide offset at 45° is different from the 0° offset—measure it with a test cut.
3. Clamp the guide so the blade removes the waste without touching the long-point layout line. Keep the wide saw-base side supported. Make one mirrored mating pair.
4. Tape the outside faces like a hinge, fold to 90°, and inspect the entire seam. Adjust the bevel/guide until the pair closes at 90° without a heel or toe gap.
5. Only then bevel both F1 ends and only the front edge of E1/E2. Orient the end-panel bevels as mirror images.

CHECK / HOLD: Output: three mitered shell parts. Acceptance: 44½" finished outside width, 13½" end depth, paired corners close at 90°, and no exposed end-grain gap.

Transfer the CAD routing map from fixed datums

Tools: Tape, knife/pencil, framing square, story sticks, actual mating offcuts, second-person checklist

Setup: Place each concealed face up and keep its fixed datum against a stop. Complete one part's whole map before moving it.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: All coordinates are inches; X = left/right from part center; Y = forward from the square rear edge where stated; Z = up from part bottom

1. Choose and mark one square datum edge and the concealed face on every part. Do not measure route positions from a miter long point.
2. Use a knife/pencil, square, and story stick to draw the complete rectangle for every feature. Write $\frac{1}{8}$ DEEP, $\frac{1}{4}$ DEEP, $\frac{5}{16}$ DEEP, or THROUGH inside each box.
3. Mirror E1/E2 deliberately: their concealed faces face each other, while every Y coordinate is still measured from each square rear edge.
4. Lay the actual mating offcut in the outline. The opening must fit the measured part, not merely the nominal $\frac{3}{4}$ " or $3\frac{1}{2}$ " label.
5. Lay out BR1 from its centerline and rear edge: shoulders at X -20.105" / 20.105", then remove material through both brace ends for 0.5" from the rear edge. The open-ended relief eliminates the former fragile end nib.

CHECK / HOLD: Output: fully marked parts and a signed route checklist. Acceptance: two-person independent measurement matches every coordinate, opening direction, and depth.

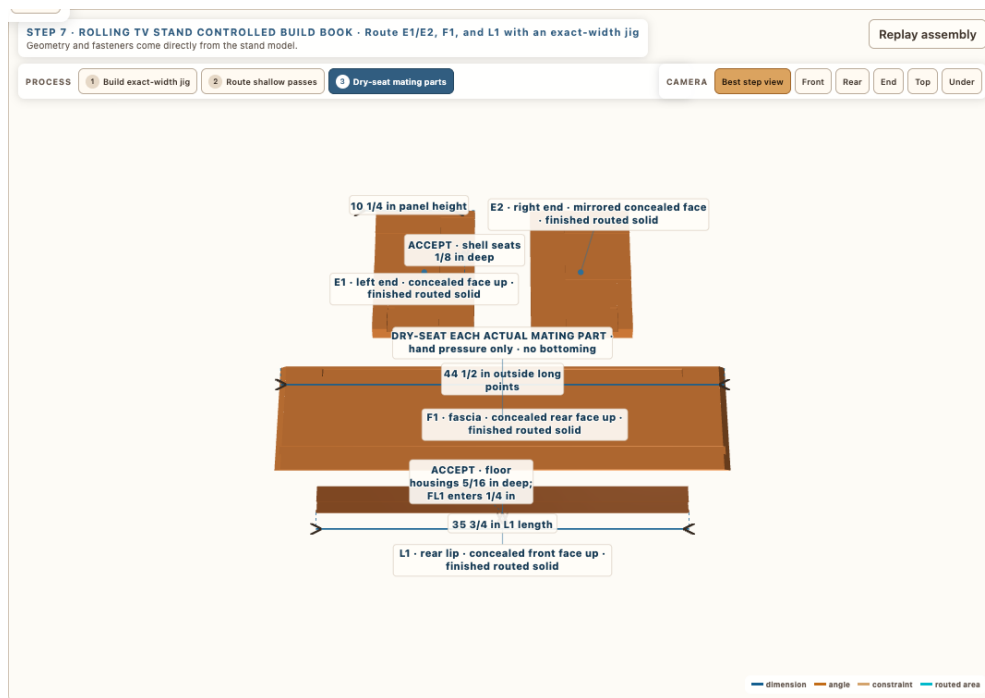
ID / stock	Description / feature	Qty	Dimensions / specification
F1 inside	Floor housing	1	Centered 35 $\frac{3}{4}$ long; Z $\frac{1}{4}$ –1 above bottom; $\frac{3}{4}$ high $\times$ $\frac{5}{16}$ deep; $\frac{1}{4}$ engagement + $\frac{1}{16}$ unglued clearance
F1 inside	BR1 dado	1	Centered 43 $\frac{1}{2}$ long; Z 8–8 $\frac{3}{4}$ above bottom; $\frac{3}{4}$ high $\times$ $\frac{1}{4}$ deep
E1/E2 inside	EB seat	2	From square rear edge: Y $\frac{3}{4}$ –12 $\frac{3}{4}$; Z 0–3 $\frac{1}{2}$; $\frac{1}{8}$ deep
E1/E2 inside	Rear riser/rail seat	2	From square rear edge: Y 2 $\frac{1}{2}$ –6; Z 3 $\frac{1}{2}$ –10 $\frac{1}{4}$; $\frac{1}{8}$ deep

ID / stock	Description / feature	Qty	Dimensions / specification
E1/E2 inside	Front riser/rail seat	2	From square rear edge: Y $7\frac{1}{2}$ –11; Z $3\frac{1}{2}$ – $10\frac{1}{4}$; $\frac{1}{8}$ deep
E1/E2 inside	BR1 end dado	2	From square rear edge: Y $10\frac{1}{2}$ –13; Z 8– $8\frac{3}{4}$; $\frac{1}{4}$ deep
L1 concealed face	Floor housing	1	Centered $35\frac{3}{4}$ long; Z $\frac{1}{4}$ –1 above bottom; $\frac{3}{4}$ high $\times$ $\frac{5}{16}$ deep; $\frac{1}{4}$ engagement + $\frac{1}{16}$ unglued clearance
EB1/EB2 top	Riser seats	4	Centers $2\frac{1}{2}$ front/rear of beam center; $3\frac{1}{2}$ along beam $\times$ full $1\frac{1}{2}$ width $\times$ $\frac{1}{4}$ deep
EB1/EB2 inward face	FL1 tongue housing	2	Centered on 12 beam; $2\frac{1}{2}$ wide; Z $\frac{1}{4}$ –1; $\frac{3}{4}$ high $\times$ $\frac{5}{16}$ deep; $\frac{1}{4}$ engagement + $\frac{1}{16}$ unglued clearance
BR1 rear edge	Open-ended riser reliefs	2	Inner shoulders X -20.105" / 20.105"; open through both brace ends; 0.5" from rear edge; through $\frac{3}{4}$ thickness

Route E1/E2, F1, and L1 with an exact-width jig

Tools: DCW600 compact router, 1/4"-shank straight bit, exact-width jig + stops, coplanar bridge, clamps, depth gauge, vacuum, chisel

Setup: Support the work and jig coplanar; make sure clamps cannot enter the router path and the cord/battery cannot snag.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: 1/4" straight bit in 1/4" shank router; Two-fence exact-width jig with end stops; Coplanar support bridge; TEST-P depth coupons

1. Unplug/remove the router battery before changing the bit or depth. Seat at least 3/4 of the shank in the collet without bottoming it; tighten with the supplied wrench.
2. Build a two-fence exact-width jig: the router base is captured between parallel guides, and stop blocks limit both ends. Calibrate the jig on TEST-P to the actual mating part plus only a sliding-fit clearance.
3. Surround narrow L1 and panel edges with equal-thickness sacrificial strips so the entire router base stays coplanar. Clamp work, jig, and stops independently.
4. Prove 1/8" shell seats, 1/4" structural dados, and 5/16" floor-housing depths on TEST-P. Make several shallow passes, increasing depth each pass. Start and stop with the bit clear; feed against cutter rotation and wait for a full stop before lifting.
5. Route from the fixed coordinates. Square pocket corners with a chisel, or radius the mating part to the actual bit radius—choose one method and label the matched pair.
6. Vacuum chips between passes; never hand-clear near a moving bit. Dry-seat each real mating offcut without force; verify FL1 engages 1/4" with 1/16" empty clearance at each housing bottom.

CHECK / HOLD: Output: isolated routed E1/E2/F1/L1. Acceptance: depth within 1/64", flat bottoms, no overrun, mirrored ends, and each labeled mating part seats by hand without slop.

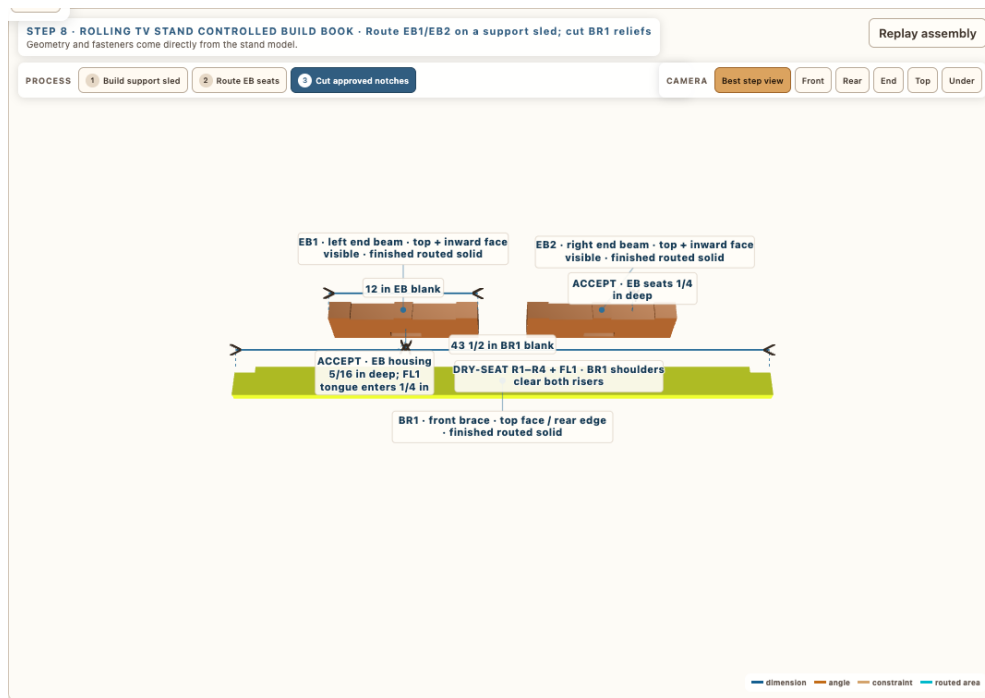
ID / stock	Description / feature	Qty	Dimensions / specification
F1 inside	Floor housing	1	Centered 35 3/4 long; Z 1/4–1 above bottom; 3/4 high × 5/16 deep; 1/4 engagement + 1/16 unglued clearance

ID / stock	Description / feature	Qty	Dimensions / specification
F1 inside	BR1 dado	1	Centered 43½ long; Z 8–8¾ above bottom; ¾ high × ¼ deep
E1/E2 inside	EB seat	2	From square rear edge: Y ¾–12¾; Z 0–3½; ⅛ deep
E1/E2 inside	Rear riser/rail seat	2	From square rear edge: Y 2½–6; Z 3½–10¼; ⅛ deep
E1/E2 inside	Front riser/rail seat	2	From square rear edge: Y 7½–11; Z 3½–10¼; ⅛ deep
E1/E2 inside	BR1 end dado	2	From square rear edge: Y 10½–13; Z 8–8¾; ¼ deep
L1 concealed face	Floor housing	1	Centered 35¾ long; Z ¼–1 above bottom; ¾ high × 5/16 deep; ¼ engagement + 1/16 unglued clearance

Route EB1/EB2 on a support sled; cut BR1 reliefs

Tools: Router + straight bit, EB support sled, exact-width jig, jigsaw, drill for starter holes, file/chisel, clamps

Setup: Bridge the narrow EB with equal-height sacrificial stock; clamp the bridge separately from the exact-width jig.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: EB carrier/support bridge; Exact-width router jig; Jigsaw + fine file/chisel; Board 6 route trial

1. Screw/clamp sacrificial boards beside each 1½"-wide EB top so the router rides on a broad coplanar surface; the support must not move.
2. Prove one 3½" × 1½" × ¼" seat and one 2½" × ¾" × 5/16" housing on Board 6 using the same jig, bit, feed direction, and pass depths.
3. Route four top riser seats and two inward-face floor housings from the coordinate table. Confirm every feature is on the correct face before powering the router.
4. For BR1, jigsaw from each brace end to the CAD inner shoulder at X -20.105" / 20.105", staying inside the waste for 0.5" from the rear edge. Finish to the line with a file/chisel; no closed inside-corner starter hole or ⅛" end nib remains.
5. Dry-seat R1–R4 and FL1. Mark each fitted pair and verify the 1/16" unglued clearance remains at each floor-housing bottom.

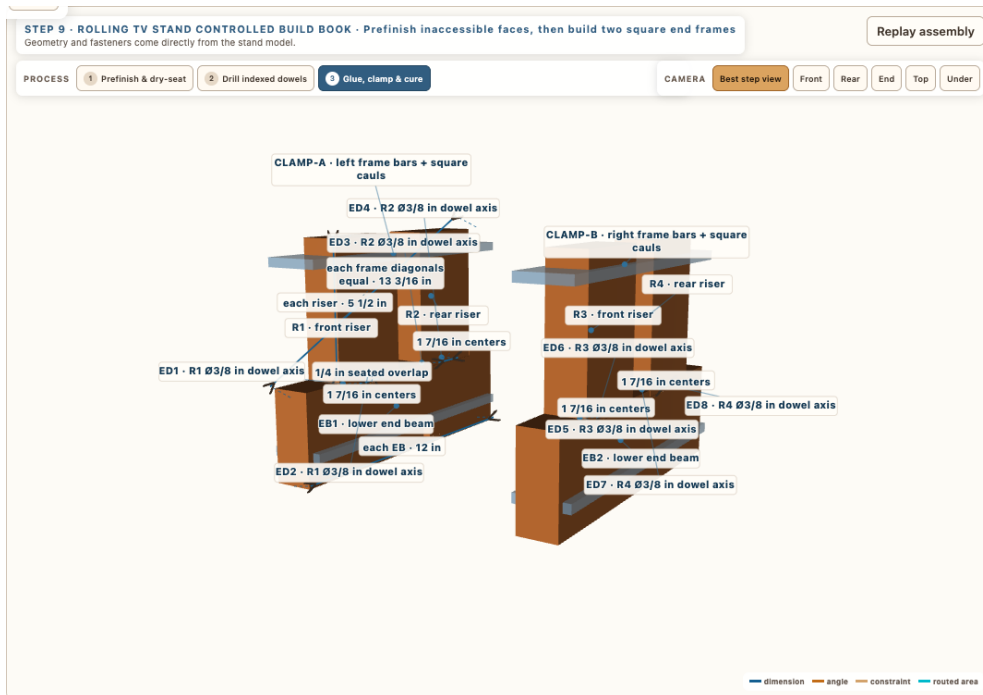
CHECK / HOLD: Output: two matched EBs and open-ended BR1 reliefs. Acceptance: risers bottom without rocking, floor tongue slides by hand, and BR1 shoulders clear the risers without a fragile end nib.

ID / stock	Description / feature	Qty	Dimensions / specification
EB1/EB2 top	Riser seats	4	Centers 2½ front/rear of beam center; 3½ along beam × full 1½ width × ¼ deep
EB1/EB2 inward face	FL1 tongue housing	2	Centered on 12 beam; 2½ wide; Z ¼–1; ¾ high × 5/16 deep; ¼ engagement + 1/16 unglued clearance
BR1 rear edge	Open-ended riser reliefs	2	Inner shoulders X -20.105" / 20.105"; open through both brace ends; 0.5" from rear edge; through ¾ thickness

Prefinish inaccessible faces, then build two square end frames

Tools: $\frac{3}{8}$ " doweling jig/bit, depth collar, story stick, framing square, cauls, parallel clamps, glue/brush, rags

Setup: Prefinish/mask before glue. Put wax paper below joints and prepare all cauls/clamps before opening glue.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: EB1 + R1/R2; EB2 + R3/R4; 8 hardwood dowels: $\frac{3}{8}$ " × $1\frac{1}{2}$ "; Story stick, doweling jig, square cauls

1. Before the first permanent glue-up, sand every currently machined part—F1, E1/E2, FL1, L1, BR1, CC1/CC2, TR1/TR2, U1/U2, all legs, EBs, risers, and blocks—through the planned grit sequence. Ease decorative edges only. Prefinish faces that will become inaccessible; mask every glue face, route seat, floor movement surface, and fastener bearing area.

2. Make one story stick locating front/rear riser centerlines at Y $-4\frac{1}{4}$ "/ $+4\frac{1}{4}$ " from EB center. Mark two dowels per riser at local offsets ± 0.72 " : Y -4.97 , -3.53 , $+3.53$, $+4.97$.

3. Dry-seat the risers, clamp to square cauls, and strike indexed witness lines across every joint. Measure both diagonals.

4. Disassemble. Set the doweling-jig stop for $\frac{3}{4}$ " into EB and $\frac{3}{4}$ " into the riser end; drill the halves separately from the same indexed face. Use a depth collar and provide a tiny glue-escape flat/groove on each dowel.

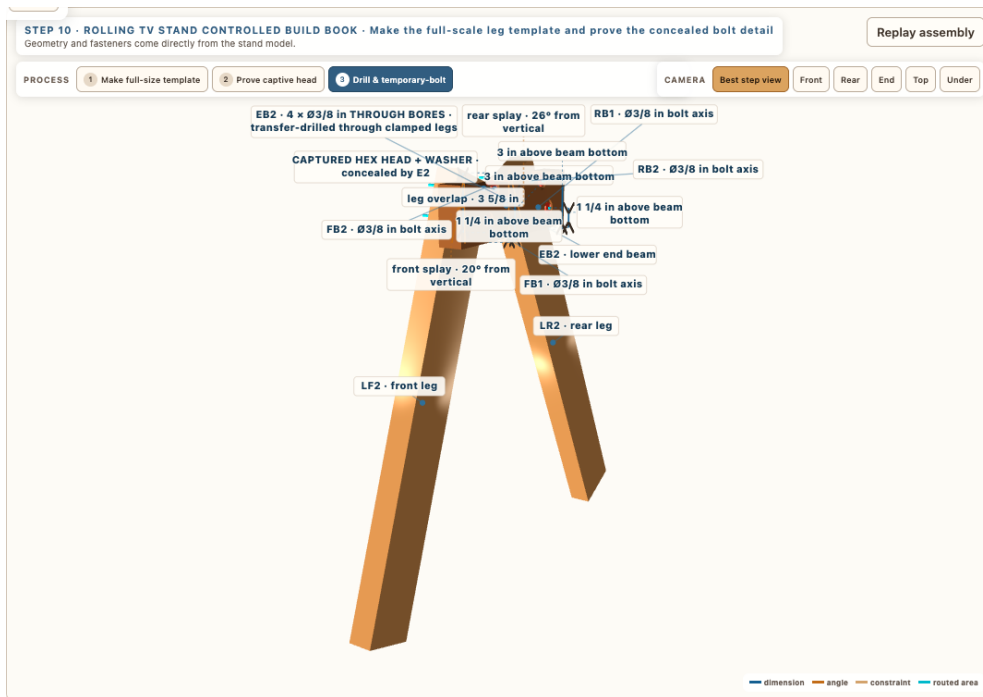
5. Dry-test all eight $1\frac{1}{2}$ " dowels. Then glue, assemble, clamp with cauls, match diagonals, remove squeeze-out, and leave clamped for the glue maker's stated time. Handle gently until fully cured.

CHECK / HOLD: Output: two cured frames. Acceptance: matching outside dimensions, equal diagonals, riser centers at $\pm 4\frac{1}{4}$ ", and all four riser tops coplanar under a straightedge.

Make the full-scale leg template and prove the concealed bolt detail

Tools: Full-scale template, clamps/stops, 1 1/16" Forstner candidate—prove actual 1.04" seat, smaller flat-bottom waste bit + sharp chisel for hex, 3/8" through-bit, drill guide, depth gauges, backer, wrenches

Setup: Work from the full-size story/template, not projection by eye. Label left/right/front/rear and use positive stops.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: Board 6 captive-head/bolt trial; Full-scale leg clamping template; 3/8" through-bit; Round washer seat 1.040" diameter × 0.140" deep; Fitted hex recess 0.606" across flats × 0.440" deep; 8 × 3/8" × 4" bolts +16 washers +8 locknuts

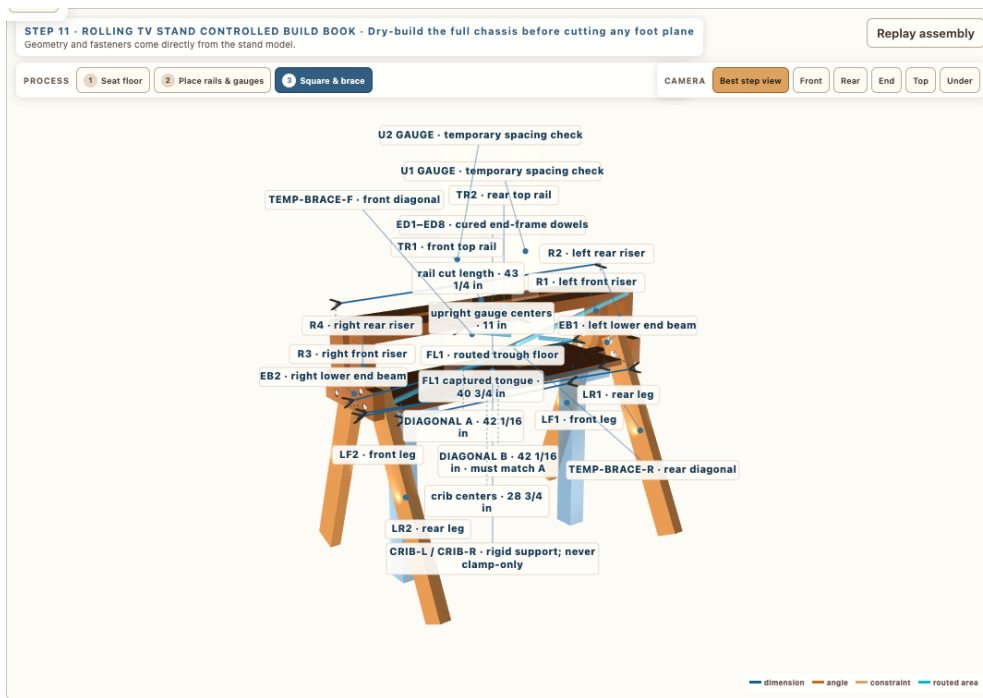
1. On a full-scale end-beam template, mark Y from EB center (front negative, rear positive) and Z up from EB bottom. Leg top axes: front Y -2.278"; rear Y +2.778".
2. Mark bolt axes: at Z 1.25", front Y -3.142" and rear Y +3.936"; at Z 3.00", front Y -2.505" and rear Y +3.083". Copy to both end frames with one story stick; do not eyeball a "CAD position."
3. Clamp each labeled leg with 3 5/8" overlap: front 20°, rear 26°, including the modeled 1/2" rear shift. Use hard stops so the left/right parts mirror.
4. On Board 6, first drill a flat-bottom round washer seat 1.040" diameter × 0.140" deep. A nominal 1 1/16" Forstner is only a candidate—measure its actual cut and use it only if the real washer has safe clearance and bearing.
5. At the same center, trace the real hex head and the CAD 0.606" across flats × 0.440" deep limit. Bore only the interior waste with a smaller flat-bottom bit, then pare six walls and the bottom with a sharp chisel to a snug head fit. Do not overcut the flats.
6. Insert the real head/washer and prove flat bearing plus anti-rotation at final torque. Only then drill the 3/8" through-hole on the same axis with a perpendicular guide and backer.
7. After captive-head/service approval, repeat on EB1/EB2, clamp each leg in its template, and transfer-drill perpendicular through EB and leg. Install the 3/8" × 4" bolts only finger-tight for the dry build.

CHECK / HOLD: HOLD until a real bolt/washer/nut stack fits, the head cannot rotate, future wrench access is demonstrated, and no hole violates the reviewed edge-distance requirement.

Dry-build the full chassis before cutting any foot plane

Tools: Rigid cribbing, temporary diagonal braces, parallel clamps, tape, square, level, straightedge

Setup: Brace and crib the structure on a flat floor. Do not rely on a person or clamp to keep it upright.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: Two cured end frames with temporary legs; FL1, TR1/TR2; Temporary diagonal braces; Rigid cribbing—not clamp-only support

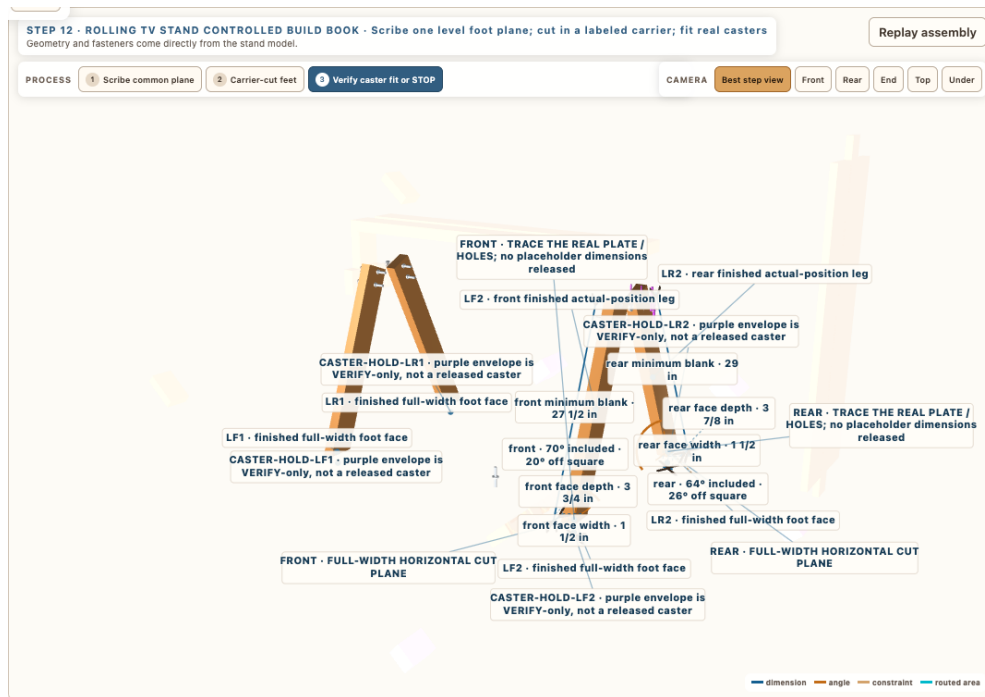
1. Bolt the four labeled legs temporarily. Stand the frames on rigid cribbing and temporary braces; never work beneath an assembly supported only by clamps.
2. Slide FL1 tongue into both EB grooves, place TR1/TR2 on all four risers, and clamp—not glue—the chassis.
3. Measure the two body diagonals, rail spacing, rail end alignment, FL1 centering, and body height. Shim or correct joinery; do not force parts.
4. Temporarily place U1/U2 at 11" centers as spacing gauges. Confirm the open chassis provides drill, socket, clamp, and router access for the next steps.
5. Only a square, rigid, fully supported chassis becomes the datum for a common horizontal caster-foot plane.

CHECK / HOLD: Output: stable open dry chassis. Acceptance: equal diagonals, coplanar rail tops, centered floor, plumb temporary uprights, and no forced or floating joint.

Scribe one level foot plane; cut in a labeled carrier; fit real casters

Tools: Real casters, level/story block, 20°/26° foot carrier, circular saw at 0° bevel, clamps, drill/approved pilot, depth stop

Setup: Update the cribbing height from real caster plate-top height. Scribe all four legs before removing any one leg.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

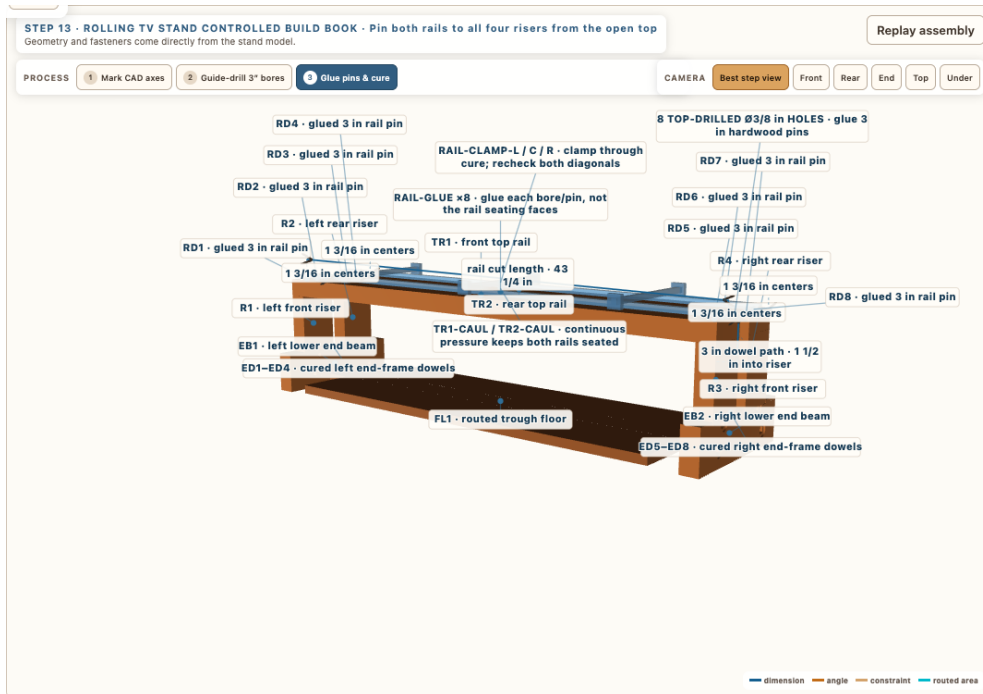
Parts / constraints: Real measured caster; Real plate-top height entered in CAD — HOLD until measured; CAD front face 1.5" × 3.725" at 20°; CAD rear face 1.5" × 3.894" at 26°; Purple CAD envelope means VERIFY — it is not released caster geometry; Circular saw remains at 0° bevel

1. First close the caster HOLD: update the CAD with actual overall mounting height, plate/hole pattern, swivel offset/envelope, lock access, and rating. Reject the foot or add a reviewed wider pad if the plate and safe pilots do not fit the 1½" face.
 2. Crib and brace the square dry chassis at the updated final elevation. Use a level story block at the real caster plate-top height to scribe one floor-parallel plane completely across all four legs.
 3. Make a foot carrier with a 20° front stop and 26° rear stop. Prove both settings on Board 6; the saw shoe stays at 0° bevel and the carrier turns the leg so a guided square-to-shoe cut creates the angled crosscut.
 4. Remove one labeled leg at a time. Clamp it in the correct carrier orientation with the full 1½" thickness under the blade path; support the waste. Cut through the entire section, wait for blade stop, reinstall, and verify all four faces are coplanar.
 5. Trace the real plate and holes. Use a center punch/awl, backer, depth stop, and manufacturer-approved pilot. Do not automatically use the old 1½" lag callout: the CAD models 1" screws and neither is released until the real angled path and edge margins pass.
 6. Fit all four casters temporarily; check full bearing, 360° swivel clearance, lock access, bolt/lag paths, and four-point contact.
- CHECK / HOLD: HOLD if any plate overhangs, pilot approaches an edge, a fastener may exit the sloped leg, a wheel hits the shell/leg, or the stand rocks.

Pin both rails to all four risers from the open top

Tools: 8 hardwood $\frac{3}{8}$ " $\times$ 3" pins, Board 6 mock-up, perpendicular $\frac{3}{8}$ " guide block, $\frac{3}{8}$ " bit, 3" depth reference, glue, flush-cut saw

Setup: Keep shell skins off and all faces reachable. Preserve the square dry-fit clamp state while transferring axes.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: 8 hardwood pins: $\frac{3}{8}$ " diameter $\times$ 3" long; 2 pins per rail/riser intersection; CAD X at end beams $\pm 20\frac{3}{4}$ "; CAD Y centers -4.85, -3.65, +3.65, +4.85

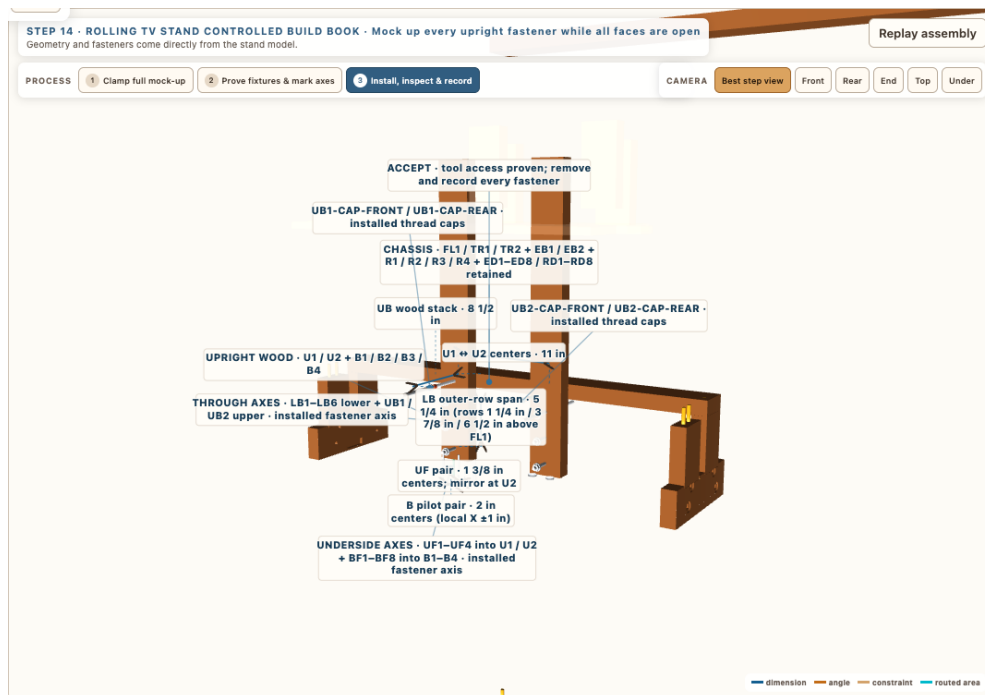
1. Keep the chassis clamped square and open. Transfer the four Y axes at each end to the rail tops; every rail/riser intersection receives two pins offset ± 0.60 " from its riser center.
2. Make a perpendicular guide block from Board 6 with a verified $\frac{3}{8}$ " bore. Clamp it to the rail so the bit cannot wander in end grain.
3. On Board 6, drill through a $1\frac{1}{2}$ " rail coupon and exactly $1\frac{1}{2}$ " into a riser coupon for a 3" total pin depth. Use a collar/reference flag; test the real pin for hand-fit and glue escape.
4. At the clamped chassis, drill one guided axis from the open rail top through $1\frac{1}{2}$ " rail and $1\frac{1}{2}$ " into the riser. Vacuum chips, insert a dry witness pin, and recheck square before drilling the next axis.
5. Remove trial pins. Glue each bore/pin, drive all eight 3" pins fully, clamp the rails down, recheck diagonals, wipe squeeze-out, and cure. Flush-cut/sand pin ends only after cure.
6. Dowel stock accounting: end frames use 12", rail pins use 24", and L1 uses $6\frac{1}{4}$ " = exactly $42\frac{1}{4}$ " finished. Reserve at least 43" usable $\frac{3}{8}$ " hardwood rod; a 48" rod leaves $5\frac{3}{4}$ " for saw kerfs and defects.

CHECK / HOLD: Output: two rails pinned at eight labeled axes. Acceptance: pins are full-depth, rail tops remain coplanar, chassis diagonals remain equal, and no pin split or exited a member.

Mock up every upright fastener while all faces are open

Tools: U/B parts, two separate Board 6 proof fixtures, all real hardware, tape + marking knife/pencil, combination square + level, drill + 12"-class $\frac{3}{8}$ " bit, bored guide + collar + exit backer, hold-down + axial clamps, sockets/wrenches, thread caps

Setup: Keep the shell off. Clamp U/B pieces in canonical positions. Build the two detached Board 6 fixtures exactly as shown before drilling project wood.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: U1/U2 at $X \pm 5\frac{1}{2}$ " (11" centers); B1–B4 centers $Y \pm 1\frac{1}{2}$ "; Board 6: one $8\frac{1}{2}$ " rail–upright–rail long-bore fixture; Board 6: one separate $4\frac{1}{2}$ " block–upright–block hardware coupon; $6 \times \frac{3}{8} \times 6$ " lower bolts + 12 washers + 6 locknuts; $2 \times \frac{3}{8}$ " threaded rods cut 10" + 4 washers + 4 locknuts + 4 thread caps; $8 \times \#10 \times 1\frac{1}{2}$ " underside block screws; $4 \times \frac{1}{4} \times 3$ " upright structural screws

1. Clamp U1/U2 plumb at $X -5\frac{1}{2}"/+5\frac{1}{2}"$. Fit B blocks front and rear with their centers at $Y -1\frac{1}{2}"/+1\frac{1}{2}"$. Label every contact face and fastener ID.
2. Build the separate Board 6 fixtures shown in process state 2. Clamp the $8\frac{1}{2}$ " rail–upright–rail sandwich to its base; register the bored guide and exit backer; add the axial and hold-down clamps. With the 12"-class $\frac{3}{8}$ " bit coaxial in the drill, prove low-speed guided drilling, chip clearing, exit control, and collar setting before touching project wood.
3. On the separate $4\frac{1}{2}$ " block–upright–block coupon, install one real $\frac{3}{8} \times 6$ " bolt, two washers, and one locknut. Prove socket/wrench access and removal. Never occupy the drilling fixture with the bit and hardware at the same time.
4. Mark the three lower through-bolt rows at $1\frac{1}{4}$ ", $3\frac{7}{8}$ ", and $6\frac{1}{2}$ " above floor top. Use six real $\frac{3}{8} \times 6$ " bolts with 12 washers and six locknuts.
5. Mark one upper coaxial row per upright at rail mid-height, $X -5\frac{1}{2}"/+5\frac{1}{2}"$ and $Y 0$. The rail–upright–rail wood stack is $8\frac{1}{2}$ " : use the proven guided 12"-class $\frac{3}{8}$ " bit, then two $\frac{3}{8}$ " threaded rods cut 10" with four washers and four locknuts. Cap all four exposed ends.
6. Mark two B-block floor-screw X axes per block: left blocks $X -6\frac{1}{2}"/-4\frac{1}{2}"$ and right blocks $X +4\frac{1}{2}"/+6\frac{1}{2}"$, all at the block Y center $\pm 1\frac{1}{2}$ ". Drive eight total $\#10 \times 1\frac{1}{2}$ " screws from the open underside through FL1 into B1–B4; there are no hidden block-to-rail screws.
7. Mark two upright floor axes per upright at local $X \pm 0.70$ " and $Y 0$: global $X -6.20/-4.80$ " and $+4.80/+6.20$ ". The CAD specifies four total $\frac{1}{4} \times 3$ " structural connector screws from the underside into U1/U2.

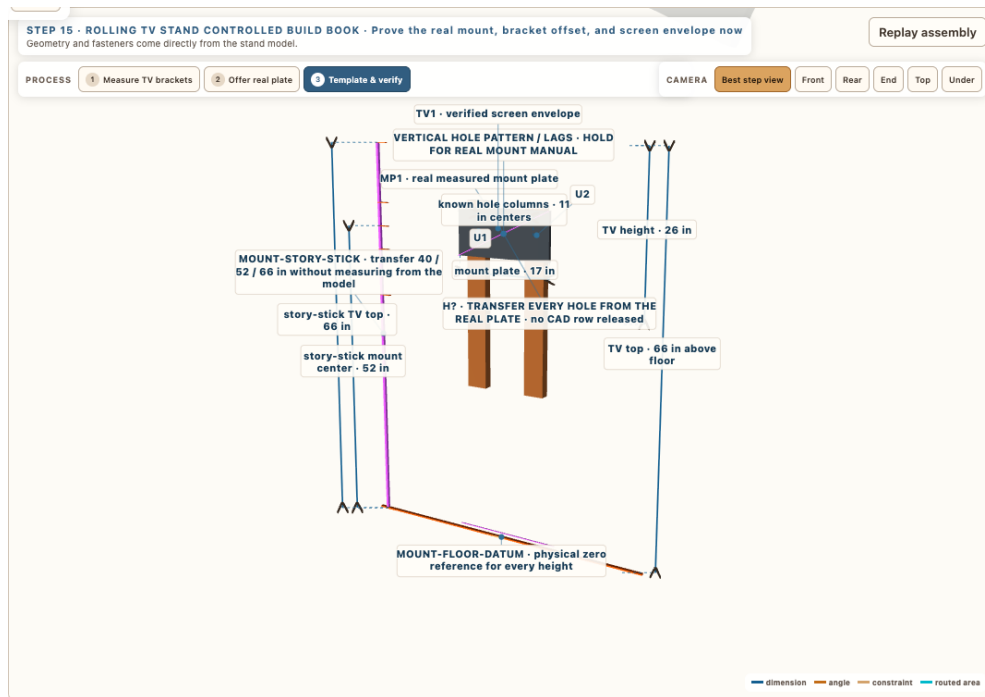
8. Only after both Board 6 proofs pass, establish project pilots/through-holes, install every project hardware stack finger-tight, and prove removal without trapped heads or blocked tools.

CHECK / HOLD: Output: a removable full hardware mock-up and complete drilling map. HOLD if any axis floats, conflicts, lacks tool access, splits an edge, or uses unapproved hardware.

Prove the real mount, bracket offset, and screen envelope now

Tools: Real TV/mount/brackets/manual, blanket, tape, level, template, approved pilot, torque wrench/driver if specified

Setup: Protect the TV face, follow its handling manual, and use the TV brackets/mount plate—not the CAD plate—as physical templates.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: Known TV $44\frac{1}{2}'' \times 26''$; Target TV bottom $40''$ / top $66''$; Target mount center $52''$; Known plate $17''$ wide / holes $11''$ apart; Actual vertical pattern still REQUIRED

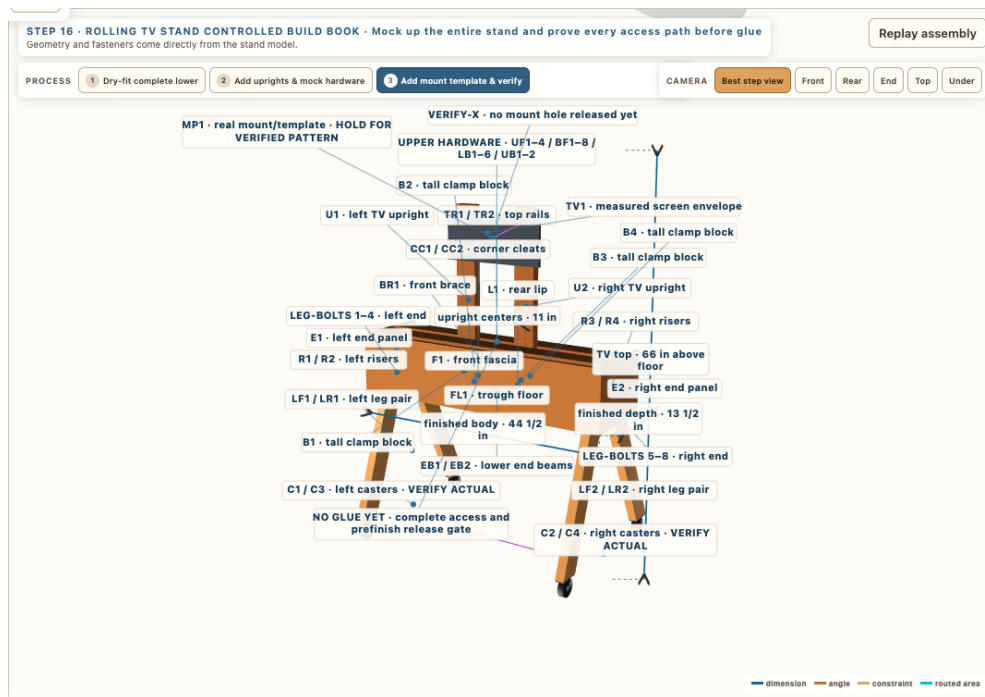
1. Lay the real TV safely face-down per its manual. Install the TV-side brackets and measure the actual VESA rectangle, bracket hook/engagement offset, and screen-bottom-to-hook center. Record TV weight.
2. Offer the real plate to U1/U2 in the open chassis. The plate width and $11''$ horizontal holes alone do not prove vertical position. Use the measured TV-side offset to calculate the plate position that produces a $40''$ TV bottom and $66''$ top.
3. Clamp the real plate at that position; attach the empty TV-side bracket or a full-size template. Prove engagement, safety-lock access, cable clearance, and at least $1''$ sound wood above the highest approved fastener.
4. Follow the mount maker's specified lag diameter, length, pilot, washer, torque, and number of fasteners. The CAD mount lags are contextual geometry, not an approved schedule.
5. Drill only after the real plate is the template and a second measurement independently confirms screen height. Remove the mount/uprights after the whole-stand mock-up for final shell work.

CHECK / HOLD: Output: measured mount worksheet and reusable hole template. HOLD until real TV/mount instructions, weight rating, vertical holes, hook offset, and all fasteners are verified.

Mock up the entire stand and prove every access path before glue

Tools: Every project part, all real hardware, miter tape/cauls, parallel clamps, squares, levels, socket/drill set

Setup: Bring every part and hardware item to the bench. Use padding on all visible faces and install no glue.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: Chassis + legs/casters; E1/E2/F1/FL1/L1/BR1/CC1/CC2; U1/U2/B1–B4; All approved hardware + real mount template

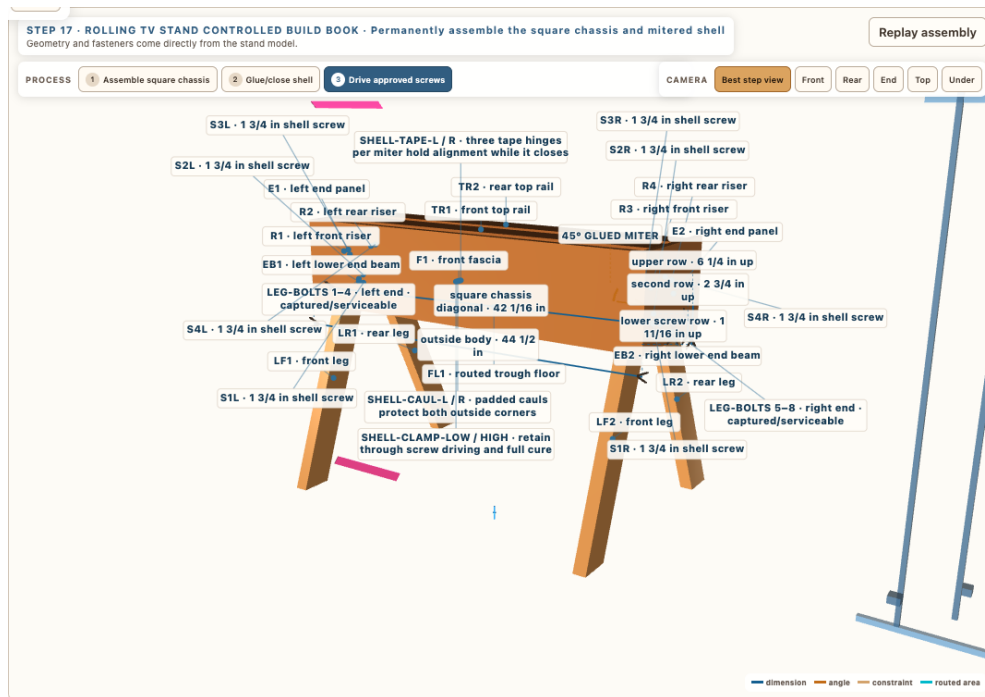
1. Assemble the complete stand without glue: shell, floor, lip, brace, cleats, chassis, legs, real casters, uprights, blocks, every bolt/rod/screw, and mount template.
2. Seat E1/E2 in the routed chassis footprints, fold the taped fascia miters closed, seat FL1/L1/BR1/CC, and clamp with padded miter cauls.
3. Verify body diagonals, $44\frac{1}{2} \times 13\frac{1}{2}$ outside envelope, foot contact, caster swivel/locks, rail and upright plumb, TV envelope, trough capacity, cable route, and ventilation.
4. Demonstrate a drill/socket/wrench path for every final fastener and a future service path for every nut that needs retorque. Mark any conflict directly on the concealed face.
5. Disassemble. Sand/ease all remaining individual parts and apply prefinish to inaccessible faces, keeping glue surfaces and fastener bearing areas masked. Let finish cure before permanent assembly.

CHECK / HOLD: RELEASE GATE: no glue until the complete mock-up passes, all hardware can be installed/serviced, all HOLD items are signed, and prefinish has cured.

Permanently assemble the square chassis and mitered shell

Tools: Flat assembly surface, glue/brush, masking tape, miter cauls, parallel clamps, approved screws/bits, damp rags

Setup: Stage parts, clamps, cauls, bits, and cleanup materials in the exact rehearsed order before mixing/opening adhesive.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: Approved rail and shell screws only; Miter tape/cauls + clamps; Glue faces kept bare; Leg heads remain serviceable/captive

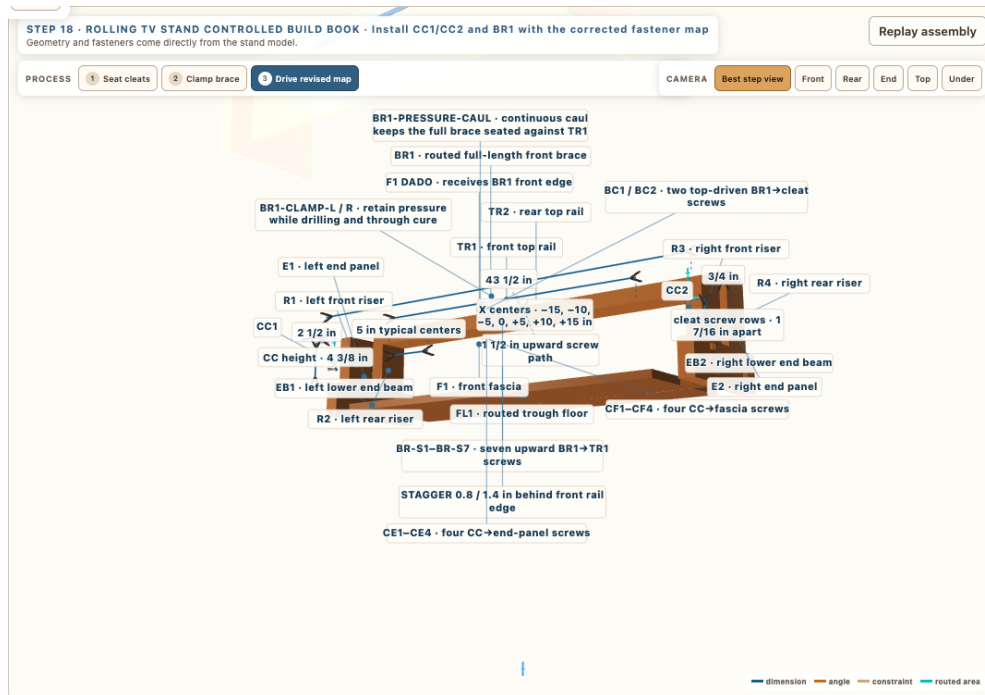
1. On a flat assembly surface, rebuild the chassis from the labeled dry fit. Confirm all eight 3" rail pins are fully cured and the diagonals remain equal.
2. Before E1/E2 conceal the leg heads, install and torque all eight $\frac{3}{8}$ " $\times$ 4" leg bolts with 16 washers and eight locknuts. Prove every fitted hex pocket resists rotation; add torque witness marks and demonstrate the approved future service path.
3. Mask visible faces. Apply glue only to the approved miter faces and reviewed chassis/shell registration seats. Keep all four FL1 housings completely glue-free so the $\frac{1}{4}$ " edge engagement can move into the $\frac{1}{16}$ " bottom clearance.
4. Seat E1/E2, floating FL1, and F1 in the rehearsed order. Close miters with tape/cauls, clamp square, and check both body diagonals before any hidden screw.
5. Use eight #10 $\times$ 1 $\frac{3}{4}$ " shell screws at CAD axes four per end: Y 0 at Z 1.70 and 2.75 above shell bottom; Y $\pm$ 4.25 at Z 6.25. Prove pilot/root diameter, direction, edge distance, and no exterior breach on Board 6 first.
6. Clean squeeze-out while wet and leave clamped/undisturbed for the adhesive maker's full cure time.

CHECK / HOLD: Output: cured square chassis/shell. Acceptance: equal diagonals, closed miters, no panel bow, no visible fastener breach, and captive/serviceable leg heads.

Install CC1/CC2 and BR1 with the corrected fastener map

Tools: Clamps, drill guide, approved pilot/countersink, approved revised fasteners, glue, straightedge

Setup: Keep the trough open and supported; clamp BR1 tight to both routed seats and the rail before drilling.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

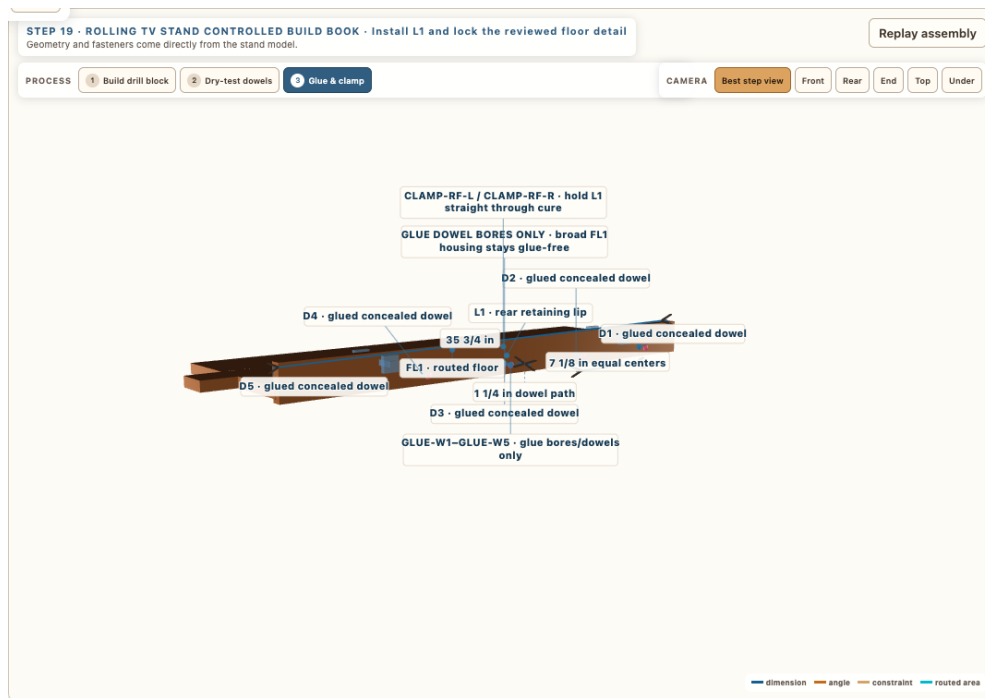
Parts / constraints: CC1/CC2 $4\frac{3}{8} \times \frac{3}{4} \times \frac{3}{4}$; BR1 $43\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{4}$; $7 \times \#10 \times 1\frac{1}{2}$ " BR1→rail screws; $8 \times \#8 \times 1\frac{1}{4}$ " cleat→shell screws; $2 \times \#8 \times 1\frac{1}{4}$ " BR1→cleat screws; X -15, -10, -5, 0, +5, +10, +15; Y alternates 0.8 / 1.4 behind front-rail front edge

1. Dry-seat CC1/CC2 and BR1; clamp BR1 continuously against the underside of the front rail. Verify both open-ended riser reliefs clear and their inner shoulders bear where intended.
 2. Mark the seven BR1 screw X centers from stand center. From the actual front-rail front edge, alternate Y setbacks 0.8, 1.4, 0.8, 1.4, 0.8, 1.4, 0.8" in the same X order.
 3. Test the $\#10 \times 1\frac{1}{2}$ " brace/rail pilot, countersink, edge distance, and drive direction in Board 6. Use a perpendicular guide and depth stop; prove the head sits flush without weakening BR1.
 4. Glue the approved dados and cleat faces, seat the parts, and clamp. Predrill and drive the seven staggered BR1→rail screws upward.
 5. For CC1/CC2, mark cleat axes X -21.125" / 21.125", Y -5.625", and Z 5.083" / 6.542" above shell bottom. At each Z, drive one $\#8 \times 1\frac{1}{4}$ " screw from the cleat into E and one into F1: eight shell screws total.
 6. Drive one $\#8 \times 1\frac{1}{4}$ " top-down BR1→cleat screw at each X, Y -5.625". Confirm every pilot and point remains inside wood before drilling.
- CHECK / HOLD: Output: BR1 continuously supports the front rail and ties both corners. Acceptance: all seven axes match the staggered CAD map, pilots remain inside wood, and BR1 stays seated along its full length.

Install L1 and lock the reviewed floor detail

Tools: Datum drill block, $\frac{3}{8}$ " bit + depth stop, backer, clamps, five dowels, glue, straightedge

Setup: Register the drill block directly from FL1 edge center and clamp a sacrificial backer at the exit side.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

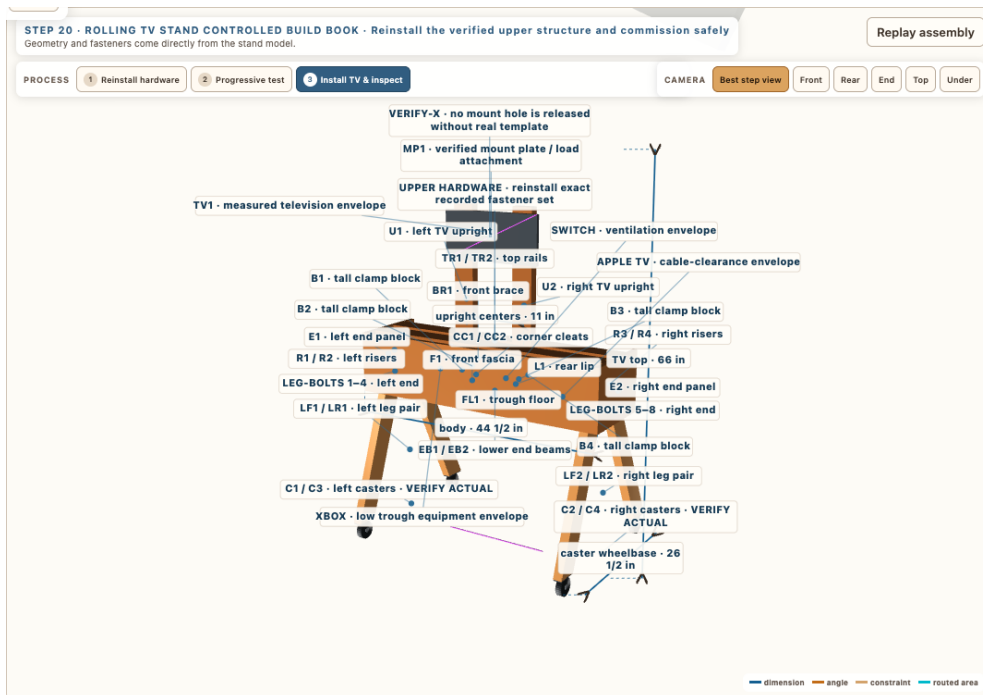
Parts / constraints: L1 rear lip; 5 CAD dowels $\frac{3}{8}$ " $\times$ $1\frac{1}{4}$ "; CAD centers X -14.30, -7.15, 0, +7.15, +14.30; Axis through L1 into FL1 edge center

1. Confirm the FL1 material/movement HOLD is closed. Keep the rear housing and all other FL1 housings glue-free; the five dowels locate L1 while the $\frac{1}{16}$ " housing-bottom clearances remain empty.
 2. Make a datum drill block that registers from FL1's $\frac{3}{4}$ " edge center. A self-centering jig on the full $2\frac{1}{2}$ "-high L1 does not locate that edge.
 3. Mark the five CAD centers from the stand centerline. Recheck that ± 7.15 " clears the actual upright/block zones and all screws; revise the CAD/map if not.
 4. Clamp L1 and FL1 with a backer. Drill along the Y axis with a depth stop so the $1\frac{1}{4}$ " dowel spans the joint without exiting either face. Prove the depth stack on TEST-P first.
 5. Dry-test all five dowels, then glue only the dowel bores/dowels—not the broad floor housing or its bottom—insert, clamp L1 straight, remove squeeze-out, and cure. Keep the opening above L1 clear for cables and ventilation.
- CHECK / HOLD: Output: straight rear lip and retained floor. Acceptance: no face breakout, no hardware conflict, and the floor movement strategy remains intact.

Reinstall the verified upper structure and commission safely

Tools: Approved hardware, torque tools, paint marker, thread caps, restraint, progressive nonfragile test load, two adults

Setup: Restrain the stand against uncontrolled rolling/tipping and establish an exclusion zone before elevated loading.



Actual CAD stage capture. Still image, not proof of the machining motion or build outcome.

Parts / constraints: Approved upright/mount hardware; Thread caps + torque witness marks; Nonfragile progressive test load; Two adults for TV installation

1. Apply the remaining finish coats, including the newly cut foot faces, while keeping hardware bores and bearing faces clean. Allow the finish maker's full cure time before reinstalling casters or loading the stand.
2. Reinstall U1/U2 and B1–B4 in the rehearsed order: eight #10×1½" underside block screws, six ⅜"×6" lower bolts with 12 washers/six locknuts, two 10" upper rods with four washers/four locknuts/caps, and four ¼"×3" upright floor screws. Torque per hardware guidance and paint a witness line across every nut/bolt.
3. Install the real mount at the already-verified template position using the manufacturer's fasteners and torque. Engage its safety locks. Do not install the TV yet.
4. With the stand restrained and people outside the tip path, inspect every load-path member and progressively load the real mount/TV attachment height with a nonfragile test load under a competent reviewer's plan. Trough ballast alone is not a proof load.
5. After static approval, test rolling, thresholds, caster swivel, locks, cable pull, and parked stability. Stop at any loosening, noise, deflection, rocking, or witness-mark movement.
6. Install the TV with two adults. Recheck screen top at 66", mount locks, cables, hardware torque, and caster operation. Keep children out of the tip zone; a mobile stand cannot be treated as conventionally wall-anchored while moving.
7. Reinspect after one day, one week, every move, and any impact. Park/tether it using the reviewed safety plan.

CHECK / HOLD: Final acceptance requires competent structural/tip-over sign-off, all locks engaged, no movement at witness marks, and the real TV/mount/caster instructions retained with this manual.

CAD-linked schedules

The following values come from the executed CAD metadata. Dimensions in inches. Do not confuse nominal lumber names with actual section sizes.

ID	Quantity	Part	Dimensions (in)
F1	1	front fascia	[44.5, 10.25, 0.75]
E1/E2	2	routed mitered end panels	[13.5, 10.25, 0.75]
FL1	1	one-piece T-shaped housed floor	[35.75, 12.5, 0.75]
L1	1	rear retaining lip	[35.75, 2.5, 0.75]
BR1	1	full-length routed front brace	[43.5, 2.5, 0.75]
CC1/CC2	2	tall front-corner cleats	[4.375, 0.75, 0.75]
TEST-P	1	same-panel test strip reserved for bevel, router, glue, and finish trials	[48, 6, 0.75]
TR1/TR2	2	flush top rails	[43.25, 3.5, 1.5]
U1/U2	2	TV uprights	[31.25, 3.5, 1.5]
LF1/LF2	2	front legs	[27, 3.5, 1.5]
LR1/LR2	2	rear legs	[28.228603500088674, 3.5, 1.5]
EB1/EB2	2	lower structural end beams	[12, 3.5, 1.5]
R1-R4	4	end-frame vertical risers	[5.5, 3.5, 1.5]
B1-B4	4	upright clamp blocks	[7.75, 1.5, 3.5]
TEST-2X4	1	fixture, tool-setup, and destructive test stock	[96, 3.5, 1.5]
SPARE-2X4	1	uncut replacement board	[96, 3.5, 1.5]

FL1 has an integrated tongue: its body size alone is not its full bounding blank. See the routing schedule and panel-cut page. Reserved test/replacement stock is not installed furniture.