220 HANCOCK ST · SCREEN ROOM · PAINTED ARCHITECTURAL JOINERY

Library wall with motorized screen drawer

Revision G.2 · 2 November 2026 · Rev G with the traditional notched-shelf sawtooth fit (G.1) and single partitions behind the stiles so every sawtooth strip is hidden (G.2, owner-approved) · supersedes Rev G · NOT FOR FABRICATION until the field-verification items on sheet 10 are closed

A painted built-in that reaches the ceiling, with the room's own plaster cornice continuing around it. Five equal-depth bays above a run of five cupboards standing on the room's own 7½" base. Flush adjustable shelves on traditional wooden sawtooth supports (notched shelves on cleats), plain painted lauan backs, and a motorized projection screen that rides out of sight in the lower frieze: at one button the frieze drawer runs 8" forward and the screen lowers in front of the books. Paint color #57614F (owner).

Printed set: material is shown by tone, not hatching. Plywood = grey, solid poplar = buff, masonry = dark grey, plaster = pale.

FIXED owner decision, not to be revisited PROVISIONAL design value pending a sample or test VERIFY depends on a site measurement or product data

01 Overview, datums and materials

no scale

Intent. Painted joinery that reads as part of the room. It runs wall to wall and floor to ceiling, and the room's plaster cornice steps around its 12" projection as though the woodwork went in before the plaster. There is no furniture crown, no gap above, and no toe recess. The aim is a convincing architectural fit with period-appropriate detail, not a claim to reproduce an original 1882 installation.

Composition. Five upper bays, all 12" deep (Rev G: the three center bays are no longer shallower; the screen now lives in a drawer behind the lower frieze). Flat chamfered stiles divide them (2½" at the walls, 3" at the two principal positions), with 2¼" painted divider faces in the center. Behind each stile is a single ¾" partition (Rev G.2), so every sawtooth strip sits behind a stile or divider face and none shows from the room. Five cupboards sit below a projecting waist ledge, under a two-band frieze with a fine bead. The center 108" of the lower frieze band is the front of the screen drawer.

Datums. X from the finished left boundary, 0 to 174 nominal VERIFY. **Z** from a surveyed level line tied to the finished floor's high point within the footprint VERIFY. **Y** from the wall reference plane: a plumb plane through the wall's most-proud point within the footprint VERIFY. All depths below are measured from Y = 0.

Depth stack (all bays)

- Y 0–¾: poplar hanging rails, shimmed to the wall at fixings.
- Y ¾–1: plain lauan back, ¼" design allowance VERIFY actual sheet.
- Y 1: inside face of back. Usable book depth is measured from here.
- All five upper bays: shelf front Y 11½, book line Y 12; divider, stile and frieze face Y 12. Front sawtooth strips run forward to the back of the stiles and faces (Y 11¼).
- Screen drawer (closed): carriage Y 1⅛–11¼ behind the frieze; fabric plane Y 7.03. Open (8" travel): fabric plane Y 15.03, 3" in front of the book line.
- Base: face frame Y 14¼–15; room base board face Y 15 13/16, torus bead to Y 16 5/16 PROVISIONAL projections; ledge front Y 16.

Material schedule FIXED · D01

- Carcasses, structural sides, dividers: birch-faced paint-grade plywood, ¾" nominal record actual.
- Face frames, doors, stiles, moldings, edging, waist ledge: clear dry poplar.
- Door panels: solid poplar, floating.
- Sawtooth standards and cleats: straight-grained poplar, traditional fit (sheet 05S): ¾" standards, ¾ × 1 cleats; shelves notched around the standards.
- Backs: plain lauan, painted sample for telegraphing.
- Upper structure (Rev G.2): ¾" end panels at X 1–1¾ / 172¼–173; one ¾" partition per tower centered behind the 3" stile (X 34⅛–34⅞, 139⅛–139⅞) under a ¾" tower cap; center dividers a ¾" core with a ¾ × 2¼ poplar face.
- Hidden structure (rails, top frame, drawer cheeks and carriage): plywood and Baltic birch sized to load, not trim stock; carriage spine 2 × 4 × ⅛ 6061-T6 aluminum tube.
- Room base: the room's existing 7½" base profile, run continuously across the cabinets and returned along both side walls, painted the cabinet color trace profile.
- Finish: compatible primer and interior cabinet enamel. Color #57614F (owner selection, 2 Nov 2026), on the cabinets and the room base alike; sheen per sample, satin or low-luster to start.

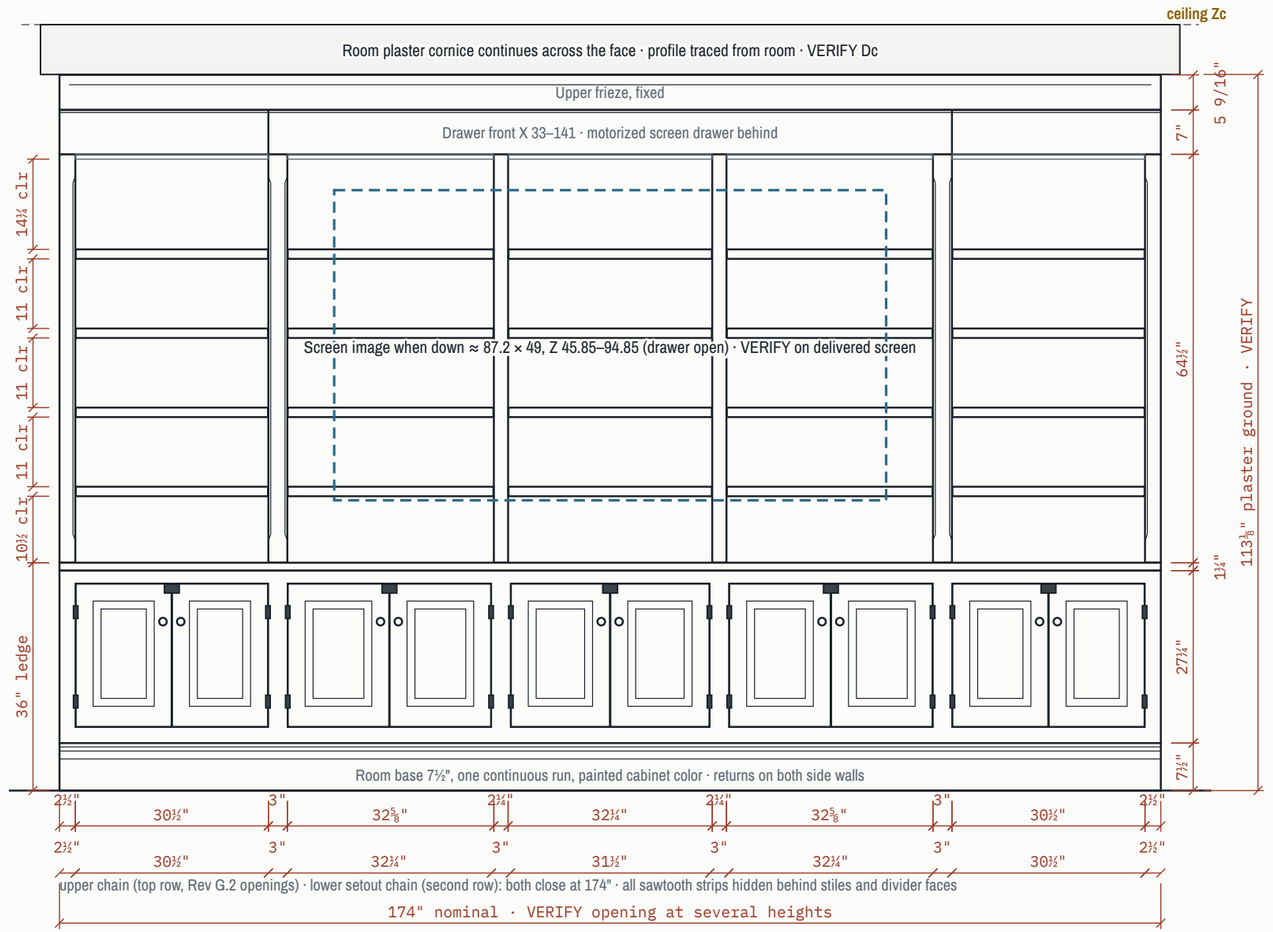
Finishing rules. Prime concealed faces and edges before assembly. Keep quirks crisp and don't fill or round them over. Never caulk across moving panel joints or the drawer-front joints (top and both ends). Keep paint thin on sawtooth seats, cleat ends, shelf notches and door edges, and let the coating cure before loading shelves or closing doors. Take hardware off for painting.

Assembly sequence

1. Survey (sheet 10): wall plane, floor high point, ceiling level, cornice profile, substrates, conduit, screen and hardware product data.
2. Full-size samples: door corner with opening bead and hinge, one working sawtooth bay, the cornice and top-silhouette mock-up.
3. Platform, shimmed level to Z 7½; full-length plinth backer on its front. The room base goes on last (step 9).
4. Lower hanging rails; base boxes with backs; boxes fixed to each other through spacers and to the rails.
5. Face frame (field joint at the X 104¼ stile); waist ledge, fixed at the rear and buttoned elsewhere.
6. Upper hanging rails (to X 1 and 173); end panels, single tower partitions with their strips and caps, divider cores, located at the ledge's rear zone only; backs; divider faces and stiles.
7. Top frame to the ceiling; drawer cheeks, slides, racks and stops; carriage with spine, torque tube, motor and belt; controls enclosure, outlet and cable carrier above the left bay. *Hang the actual screen and run the drawer and screen with books in place before any finish trim.*
8. Fixed frieze boards, plaster ground and cornice backing; plasterer runs the cornice.
9. Drawer front on the carriage (slotted fixings); stile faces; room base across the cabinets with mitered returns on both side walls.
10. Doors, finish, sawtooth standards and cleats, shelves, hardware.

02 Front elevation

approx. ¼" = 1'-0" · screen up, image outline dashed

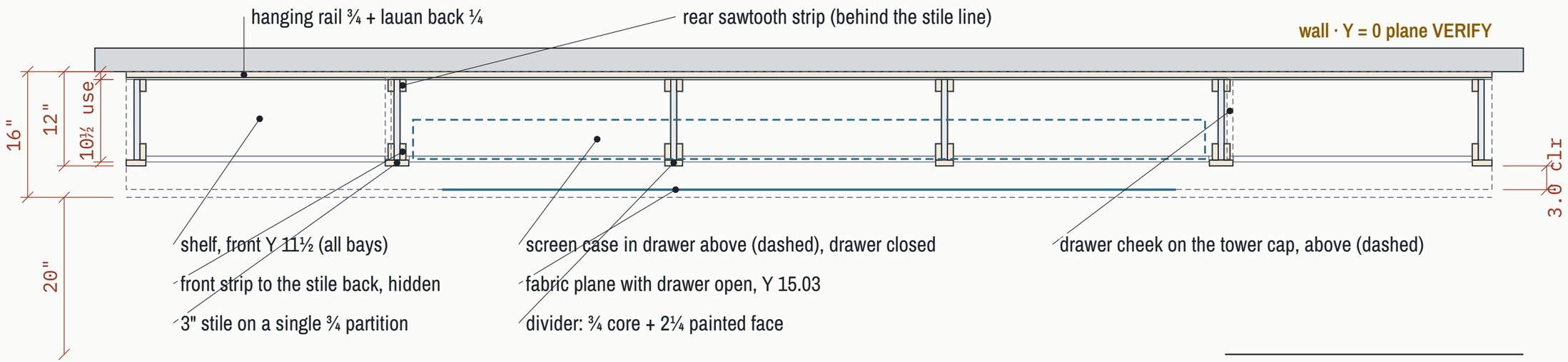


Shelf tops shown at Z 48, 60½, 73 and 85½: an illustrative setting on the 1¼" tooth grid, not an approved schedule. Clear openings at the left are measured at the front edge, below the 1½" upper shelf edging. The top opening runs to the tower soffit (side bays) or the ¼" pocket liner (center bays), both at Z 99¾. Whether a given book fits depends on both its height and its depth, so check representative books (sheet 10). Frieze setout (Rev F.2): lower band 100½–107½ (the center 108" is the drawer front), a paint-free 1/16" joint, upper frieze 107 9/16–113 1/16, and the plaster ground's underside at 113⅜, leaving the 1/16" quirk. Model these gaps; don't close them. Base (Rev G): the room's 7½" base runs across in one continuous board; cupboards, face frame and doors sit 3½" higher than Rev E, so the doors are 22⅝" tall.

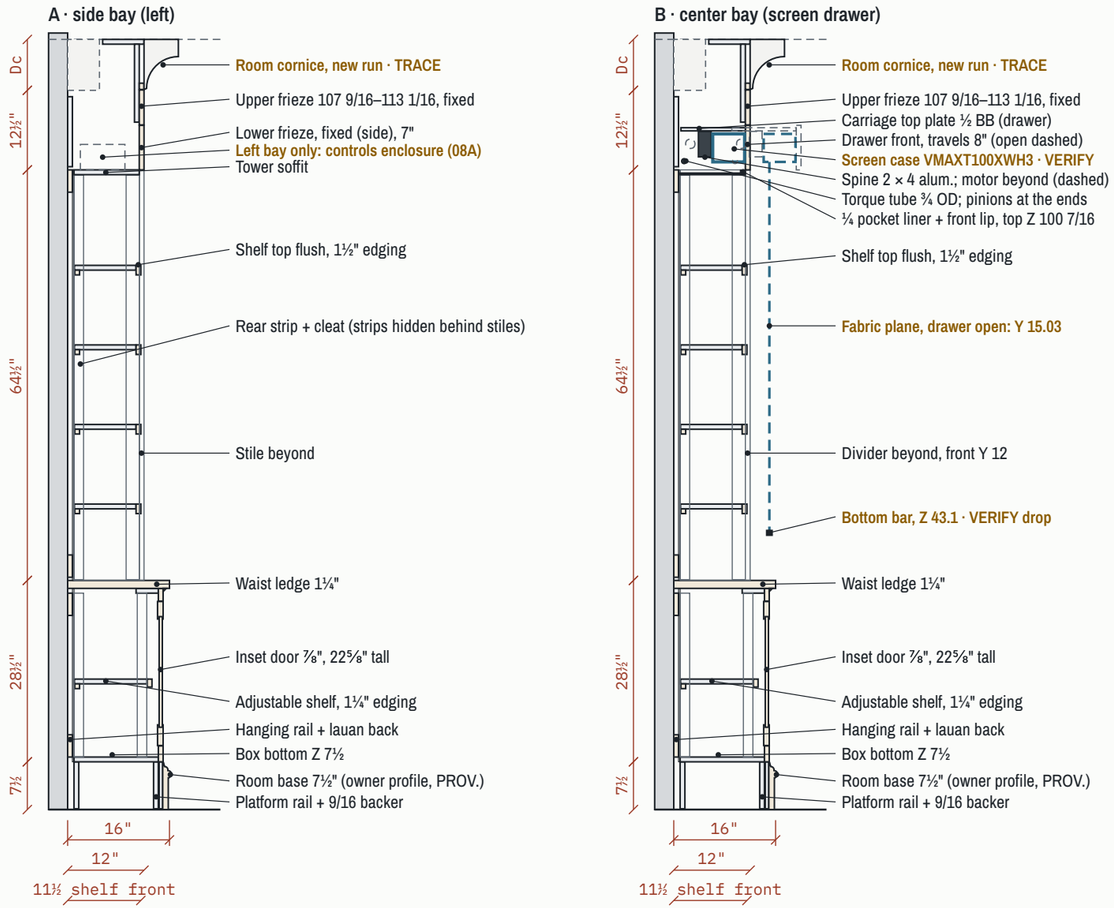
03 Plan and sections

approx. ¼" = 1'-0"

A PLAN CUT AT Z ≈ 62, ABOVE A SHELF

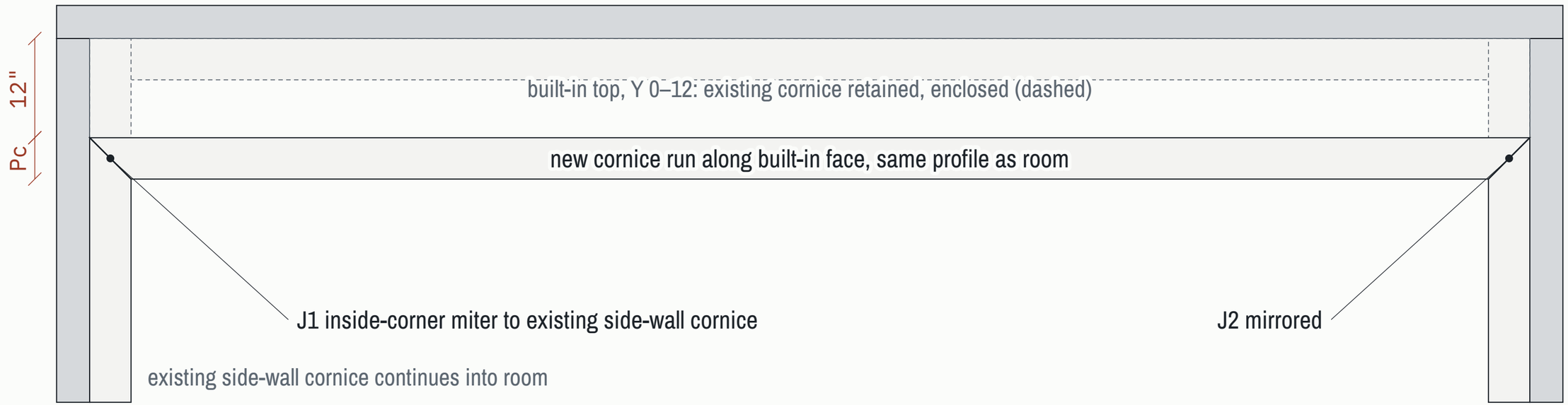


B SECTIONS THROUGH A SIDE BAY AND A CENTER BAY



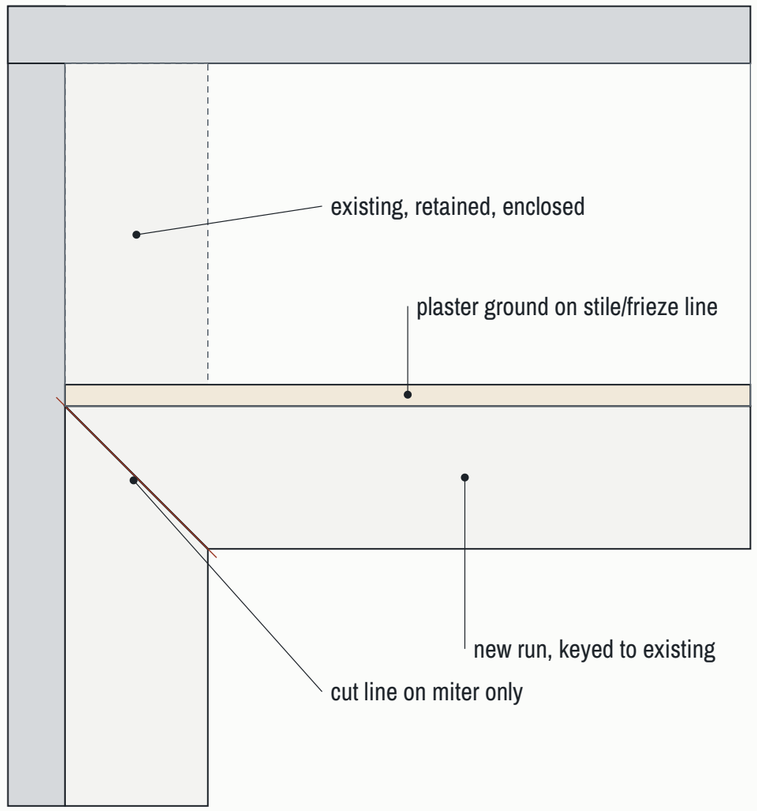
All five bays now share the side-bay section; B is cut through a center bay to show the screen drawer, closed (solid) and open (dashed). The 20" shown in plan runs from the ledge front (Y 16) to the entry-door line, which the owner gave as 36" from the wall. It is a design relationship, not a verified passage or code clearance; confirm it on the room survey.

A REFLECTED CEILING PLAN AT THE SCREEN WALL



Pc, Dc, enrichment and the room's door/trim positions are survey items · drawn Pc is a placeholder

B LEFT END JUNCTION (RIGHT END MIRRORED)



How the cornice continues. A new run of the room's own cornice profile is formed along the built-in face at Y 12, with its lower edge on a fixed wooden plaster ground at Z 113⅛. At each side wall it meets the existing side-wall cornice in an inside-corner miter. The plasterer runs the new work in place, or casts lengths from a template taken from the existing profile.

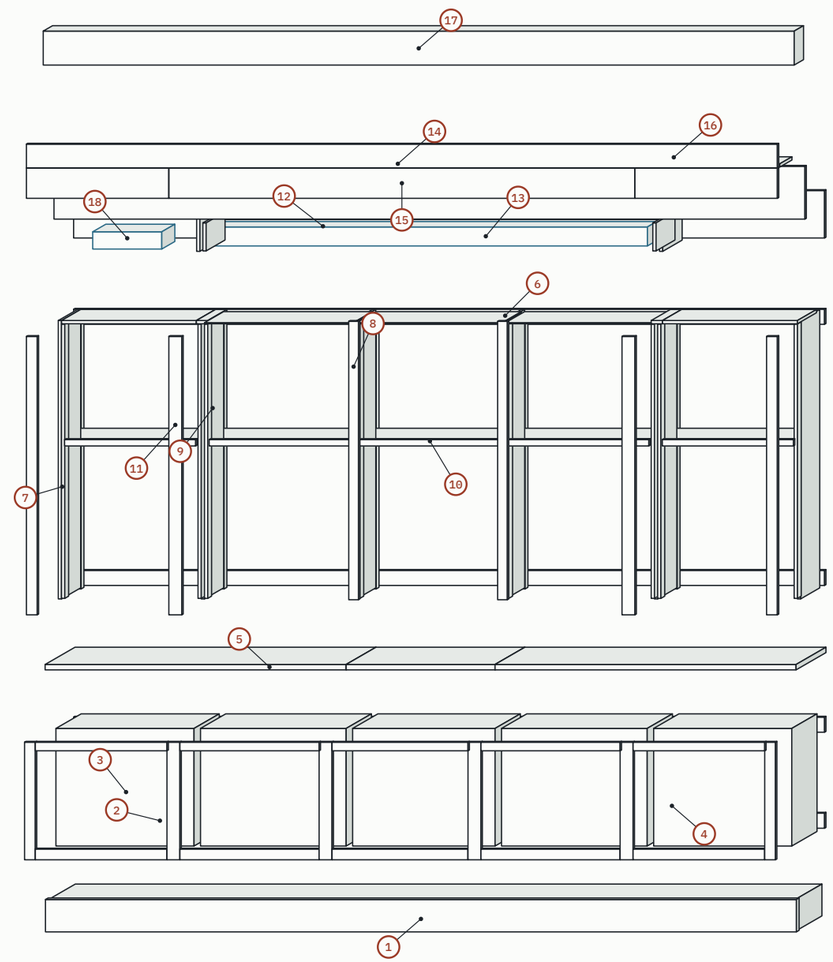
Existing plaster. The existing screen-wall run and the short side-wall lengths behind the face plane stay in place, enclosed in the void above the frieze. The top frame is set to clear them. Existing work is cut back only along the junction line. Before any cutting, record the profile, condition and substrate per NPS Preservation Brief 23 (S7). This set does not authorize wholesale removal.

Movement. The plaster backing is metal lath on furring fixed to the permanent top frame and ceiling framing. It never bridges the removable panel, and it never relies on a solid-wood board for support. The upper frieze slips under the plaster ground with a 1/16" shadow quirk, so wood movement doesn't crack the plaster.

VERIFY Ceiling height Zc, cornice drop Dc, projection Pc, enrichments and their repeat (if any enriched member exists, set the miters at motif centers, never through a motif), side-wall trim and door casings near the corners, and the joist direction for the top frame.

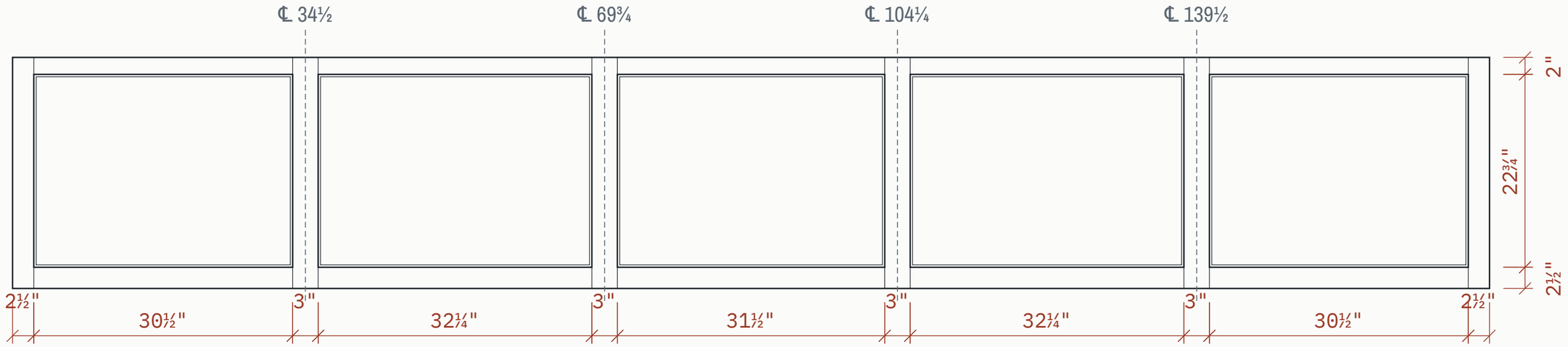
04 Exploded assembly

oblique, depth at half scale · doors and shelves on 05S / 06 · drawer mechanism on 08A



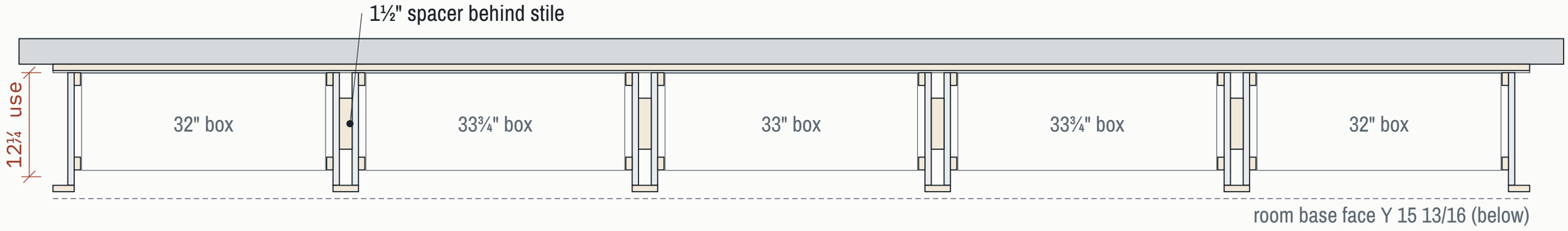
1. Platform (shimmed level, Z 7½), plinth backer and the room's 7½" base run across the front
2. Lower hanging rails, shimmed to wall
3. Five base boxes Z 7½–34¾, sides flush with openings, lauan backs
4. Face frame with stuck opening bead; field joint at X 104¼ stile
5. Waist ledge, three sections joined at divider centerlines
6. Upper hanging rails (lauan backs between, not shown)
7. End panels and single ¾" tower partitions (G.2), tower caps, side soffits and center pocket liners
8. Center dividers: ¾" core + 2¼" painted face (G.2)
9. Sawtooth strips, ¾" thick, four per bay, all 63 9/16", hidden behind stiles and divider faces
10. Typical notched shelf on two ¾ × 1 cleats (one shown per bay)
11. Flat stile faces, stop-chamfered
12. Drawer cheeks on the ¾ tower caps, upper wall rail, carriage end plates and aluminum spine (motor accented)
13. Screen case VMAXT100XWH3 on floating brackets (accented)
14. Permanent top frame: ceiling ladder and fascia web
15. Drawer front X 33–141 (moves with the carriage) and fixed lower-frieze ends
16. Upper frieze, fixed
17. Plaster cornice on independent backing
18. Controls enclosure above the left bay (ESP32, motor driver, 12 V supply)

A FACE FRAME, FRONT VIEW (SETOUT OPENINGS)

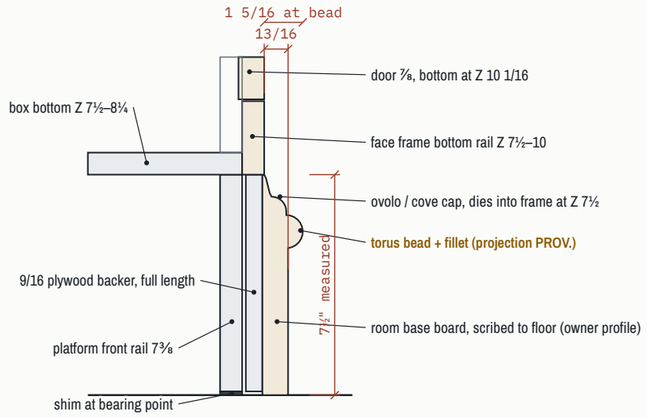


Face frame Z 7½–34¾, standing on the room base. Stile centerlines at X 34½, 69¾, 104¼, 139½ line up with the upper stiles and dividers. Openings are setout sizes; the ¼" bead is stuck on the frame arris and does not reduce them.

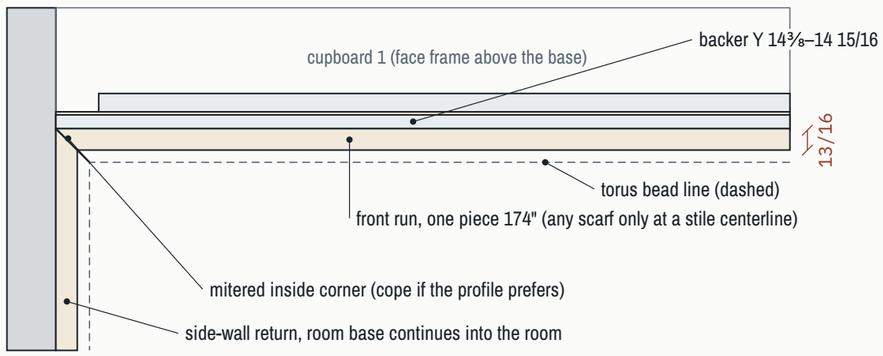
B BOX LAYOUT, PLAN AT Z ≈ 20



C ROOM BASE SECTION AT THE CUPBOARDS



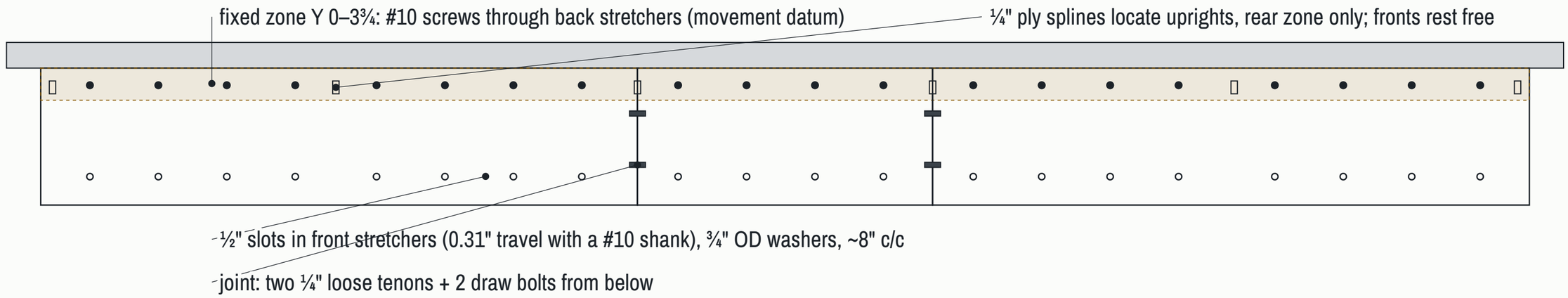
D ROOM BASE AT THE SIDE WALLS, PLAN (LEFT END; RIGHT END MIRRORED)



- Each cupboard is its own ¾" plywood box, Z 7½–34¾ (27¼" tall). Its side faces are flush with the face-frame opening, so a shelf passes straight in through the door. Adjacent boxes meet behind the 3" stiles with a 1½" spacer, screwed through.
- **Platform** D06: a plywood platform carries the boxes at Z 7½; front and rear rails 7⅜" tall, crossmembers under every box side and at mid-box. Shim at bearing points on the surveyed floor. Fix through the rear rail into the hanging-rail line and to the floor only after locating the substrate and any services VERIFY.
- **Room base** (Rev G, owner decision): the room's own 7½" base molding runs straight across the cabinets in one continuous run, with no joints under the doors, and returns along both side walls with mitered inside corners. It is painted the cabinet color. A full-length 9/16" plywood backer on the platform front gives it a straight nailing face at Y 14 15/16. The face-frame bottom rail sits on its top. Profile from the owner's photo and tape (2 Nov 2026): flat board to about 5", a torus bead with a fillet, then an ovolo and cove cap dying into the frame at 7½". Heights measured; projections PROVISIONAL until the profile is traced (FV6). Scribe the board to the floor; hold the cap at Z 7½.
- The Rev E closed plinth, its ⅜" top bead, the joints at X 69¾ and 104¼, and the cupboard-3 AV intake/exhaust details are deleted.

Cupboard 3 is built like the others (Rev F.1/G): solid box bottom, full top stretcher, standard face-frame top rail and continuous cove, platform rail without notches. No equipment is planned in the cupboards; the drawer's electronics are above the left bay (08A).

E WAIST LEDGE FIXING AND MOVEMENT



Ledge movement across 16" depth ≈ 16 × 0.00289 × 4% MC ≈ 0.19" (assumed range): taken at the front edge; cove fixed to the face frame only.

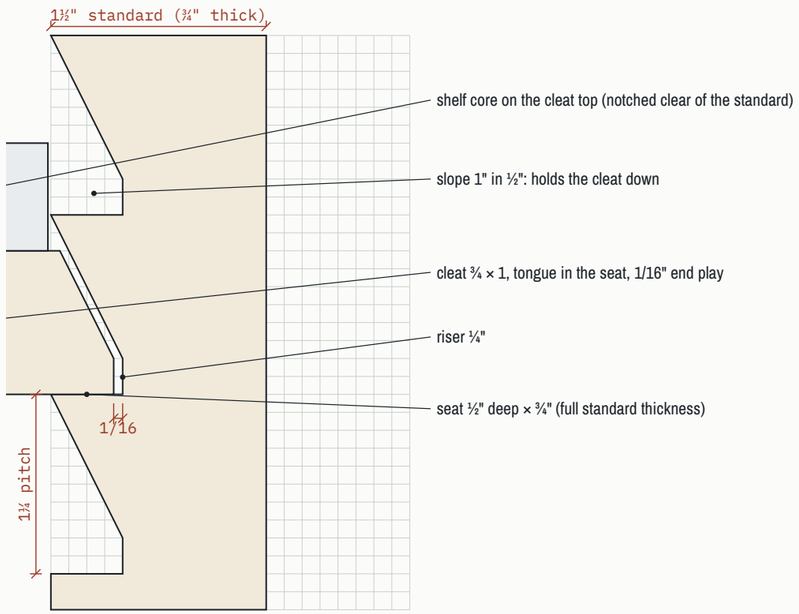
The rear 3¾" is the fixed datum: screws through the back stretchers, plus the uprights' locating splines. Everywhere else it is held with #10 pan-head screws and ¾" OD flat washers in ½"-long slots running front to back. A 0.19" shank in a ½" slot leaves 0.31" of travel. At the front stretcher, about 10½" from the fixed zone, expected movement is about 0.12" over a 4% MC range (0.19" at the front edge). Set each screw at the slot center if the ledge goes in at mid-range MC, or toward the end it will move away from if it goes in dry or damp; that leaves at least 0.09" reserve each way. The washers cover the full slot. Upright fronts rest on the ledge unfixed; the uprights are held by the wall rails and top frame. Ledge joints at the divider centerlines get two ¼" loose tenons and two draw bolts each. The joint shows forward of the divider as a fine painted line. The cove now runs the full 174" (no AV opening).

05S Adjustable shelf system: traditional wooden sawtooth

Rev G.2 · notched shelves on cleats · strips hidden behind stiles and divider faces

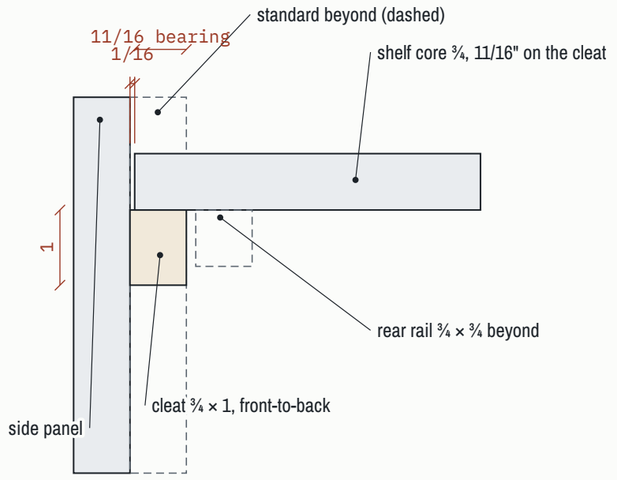
How it works D05 G.1/G.2 owner. The traditional fit, with every strip hidden. Each upper bay and cupboard has four notched vertical strips, ¾" thick, one in each inside corner of its interior: rear strips at Y 1–2½; front strips from Y 9 3/16 forward to the back of the stile or divider face at Y 11¼ (upper), or Y 10 15/16–12 7/16 (cupboards). They are glued and screwed to the ¾" end panels, the single tower partitions and the divider cores (never to the lauan back). In the upper bays the interior (panel face to panel face) is ¾" wider each side than the visible opening, so the strips sit behind the stiles and faces: ⅜" inside the edges of the 3" tower stiles, and flush with the edges of the 2½" end stiles and 2¼" divider faces (zero margin, so set those strips −0/+1/32 toward the panel and no strip edge shows). Teeth are on a 1¼" pitch from the Z datum, with a ½" seat and ¼" riser, cut through the full ¾". Each side gets one loose cleat: a straight ¾ × 1 poplar bar spanning front to back between the two strips, its ends shaped as tongues that sit in the tooth seats with 1/16" end play. The shelf core runs the full interior less ⅛" (1/16" each side), ¾" plywood notched at all four corners around the strips with 1/16" clearance, and rests on the cleat tops (11/16" bearing each side). The edging spans the visible opening less 1/16" each side, so on the upper shelves it sits off-center on the core (schedule E); because the edging is flush on top, those shelves are handed and can't be flipped end for end. A ¾ × ¾ rear rail runs between the rear notches. No keepers. Nothing projects above the shelf top. Build and test one full bay before production PROVISIONAL.

A TOOTH AND CLEAT TONGUE, FULL SIZE

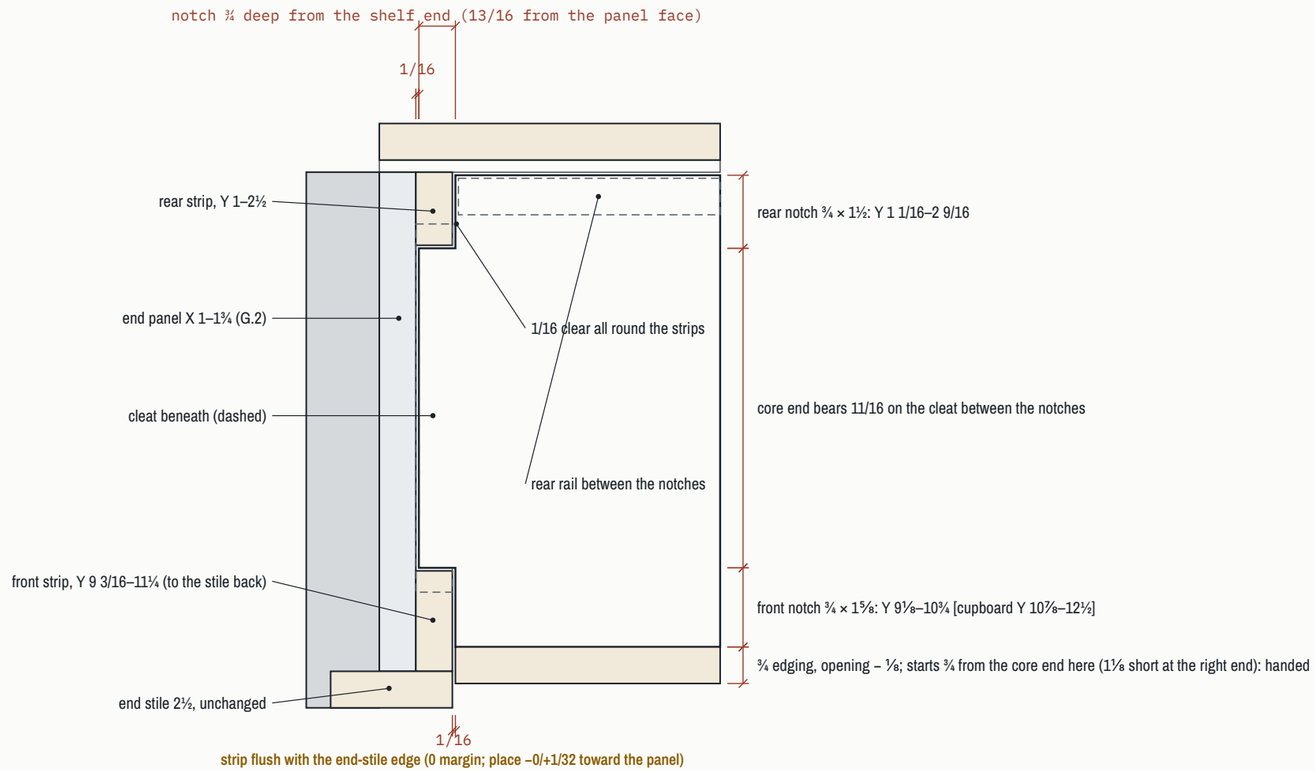


Notches are cut through the full ¾" thickness and open to the bay; a cleat lifts out of its seats.

B SECTION ACROSS THE BAY AT A CLEAT



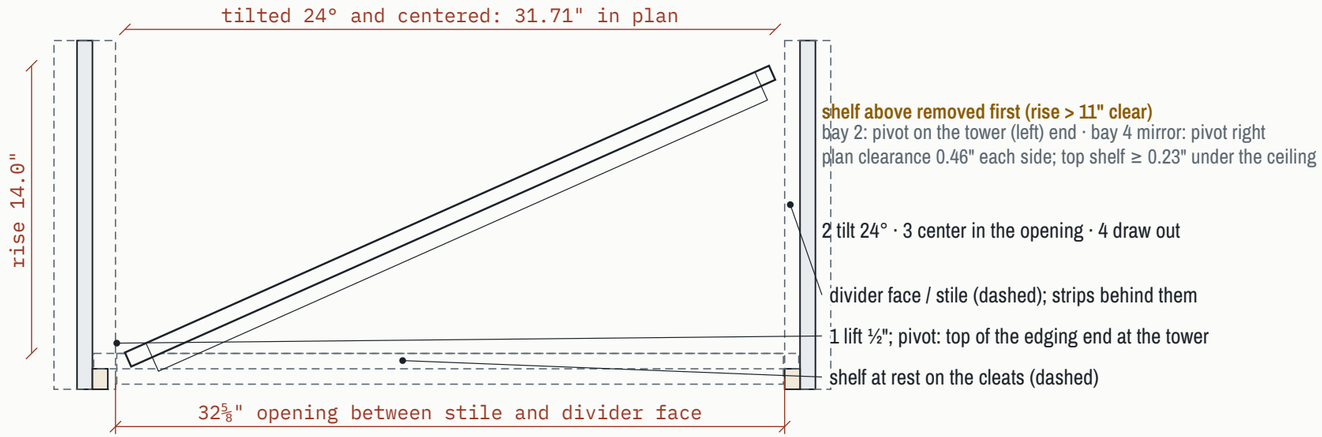
F SHELF-CORNER NOTCHES, PLAN (LEFT SIDE BAY, LEFT END; CUPBOARD VALUES IN BRACKETS)



G FIT AND TOLERANCES

FIT	DESIGN CLEARANCE	SET BY	TOLERANCE
Core ends to panel faces (upper) / opening sides (cupboards)	1/16 each side	core = interior – ⅛ (upper), opening – ⅛ (cupboards)	± 1/32
Edging ends to the stiles / divider faces	1/16 each side	edging = visible opening – ⅛	± 1/32
Notch to strip (side, rear, front)	1/16 all round	notch ¾ deep from the shelf end (13/16 from the panel face) × 1½ (rear) / 1⅝ (front)	+1/32, –0
Shelf bearing on each cleat	11/16	cleat ¾ wide – 1/16 clearance	min ⅝
Cleat tongue end play	1/16 each end	cleat = sr + 7/16 – 2 1/16 (7 9/16" upper, 9 5/16" cupboard)	± 1/64
Strips hidden behind stiles / faces	⅜ inside the 3" tower-stile edges; flush (0) with the 2½ end-stile and 2¼ divider-face edges	strip line X vs stile or face edge	tower stiles ± 1/32; end stiles and divider faces –0/+1/32 toward the panel
Tooth pitch and seat	1¼ pitch, ½ seat, ¼ riser	one story stick for all strips	± 1/64 cumulative
Rear rail to notches	1/16 each end	rail = interior – 1¾	± 1/32
Paint build	thin coats on seats, tongues, notch faces	clearances above are bare-wood	check after finish

C REMOVAL: LIFT, TILT ABOUT THE EDGING END, CENTER, DRAW OUT (ELEVATION ACROSS CENTER BAY 2)



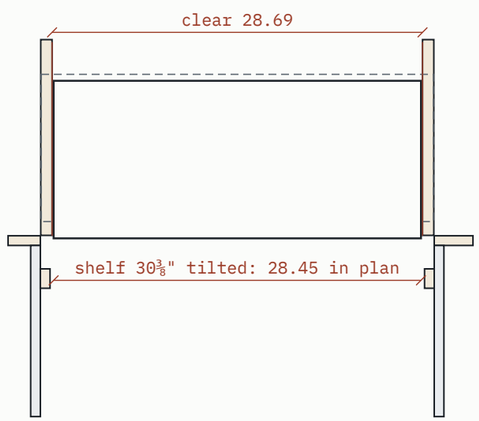
To remove a shelf: unload it. Lift it ½" off the cleats, tilt it about 24° about the top of the edging end on the pivot side (that point stays put, so nothing swings into the stile), slide it to center its plan width in the visible opening, and draw it straight out. Pivot on the TOWER end in the center-side bays: bay 2 pivots left and lifts its right end; bay 4 pivots right and lifts its left end (lifting bay 4's right end brings its high corner to Z 99.68, only 0.07" under the ceiling). Bay 3 goes either way (0.38" under the ceiling); bays 1 and 5 either way (≥ 0.94"). Tilted and centered, the plan clearance is 0.37" (side bays), 0.46" (bays 2, 4) and 0.61" (bay 3) each side, and the minimum ceiling clearance for the top shelf is 0.23". The rising end climbs about 13–14", so work from the top shelf down. Cupboards are unchanged from G.1: 23° with the doors at 90° (outer), 21° with the doors at 135° (middle). Reverse to replace.

To move a shelf: with the shelf out, lift each cleat out of its seats, drop it into the new pair of teeth (same tooth number front and rear, and on both sides), and set the shelf back on.

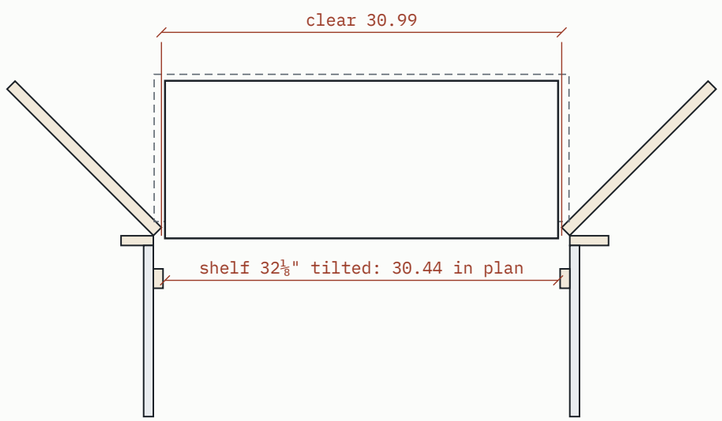
SETTING CHECKED	REQUIREMENT	RESULT
Upper side shelves (core 32¼, edging 30⅜)	Lift ½, tilt 24° (either end): 29.77" in plan vs 30½", 0.37" each side; rise ≈ 13¼"	clear (shelf above removed)
Upper bays 2, 4 (34⅜ / 32⅛)	31.71" vs 32⅝", 0.46" each side; pivot on the tower end; rise ≈ 14"	clear (shelf above removed)
Upper bay 3 (33⅝ / 32⅛)	31.02" vs 32¼", 0.61" each side; either end	clear (shelf above removed)
Top shelf, every bay (85⅛)	Pivot on the tower end in bays 2 and 4: ≥ 0.23" under the ceilings (bay 4 lifted right would leave 0.07")	clear
Outer cupboards 30⅜"	Doors at 90°: 28.45" tilted 23° vs 28.69" between leaves	clear; confirm on sample
Middle cupboards 32⅛ / 31⅜ / 32⅛"	Doors at 135°: 30.44" tilted 21° vs 30.99" (cupboards 2, 4)	clear; confirm on sample

C2 CUPBOARD SHELF REMOVAL WITH THE DOORS OPEN (PLAN AT SHELF LEVEL)

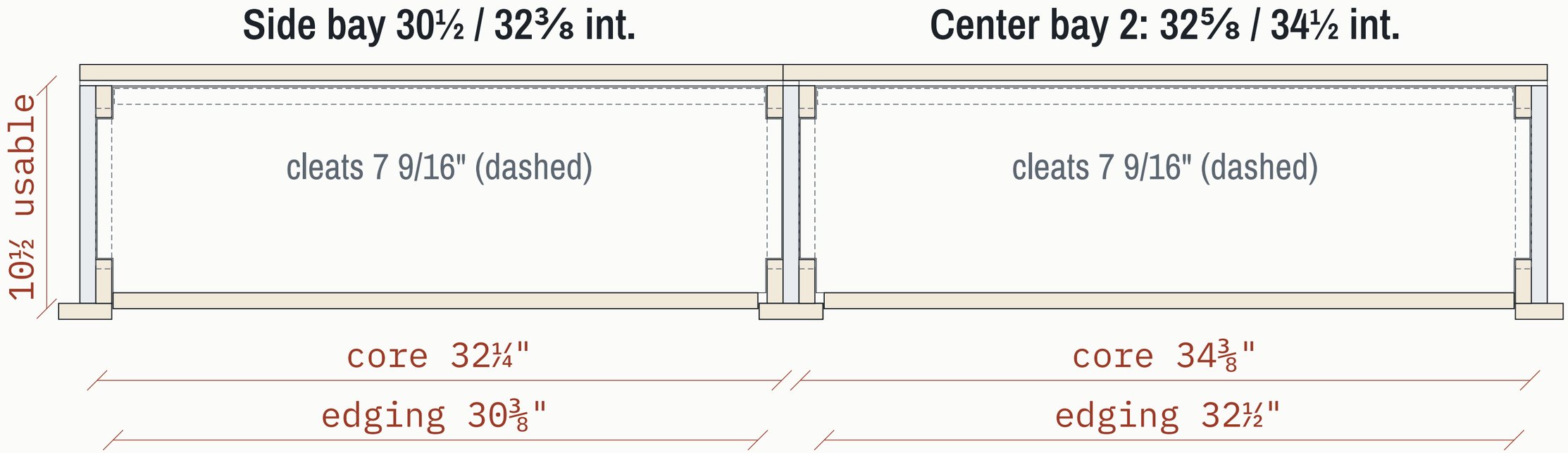
Outer cupboards 1, 5: doors at 90°, shelf tilted 23°



Cupboards 2, 4 (3 alike): doors at 135°, shelf tilted 21°



D BAY PLANS: LEFT SIDE BAY AND CENTER BAY 2 (REV G.2 SINGLE PARTITIONS)



E SHELF SCHEDULE

LOCATION	OPENING / INTERIOR	CORE WIDTH	EDGING · OFFSET FROM CORE ENDS	SHELF TOPS Z (ILLUSTRATIVE)	SEAT Z (TOOTH NO.)	USABLE DEPTH	CLEAT LENGTH	REMOVAL TILT
Upper side bay 1 (bay 5 mirror)	30½" / 32⅜"	32¼"	30⅜" · ¾ L / 1⅛ R (5: 1⅛ L / ¾ R)	48, 60½, 73, 85½	46¼, 58¾, 71¼, 83¾ (37, 47, 57, 67 × 1¼)	10½"	7 9/16"	24°, edging pivot
Upper center bays 2, 4	32⅝" / 34½"	34⅜"	32½" · 2: 1⅛ L / ¾ R; 4: ¾ L / 1⅛ R	same	same	10½"	7 9/16"	24°, edging pivot
Upper center bay 3	32¼" / 33¾"	33⅝"	32⅛" · ¾ each end	same	same	10½"	7 9/16"	24°, edging pivot
Cupboards 1, 5	30½"	30⅜"	same as core	20½	18¾ (15 × 1¼)	12¼"	9 5/16"	23°, doors 90°
Cupboards 2, 4	32¼"	32⅛"	same as core	20½	18¾	12¼"	9 5/16"	21°, doors 135°
Cupboard 3	31½"	31⅜"	same as core	20½	18¾	12¼"	9 5/16"	21°, doors 135°

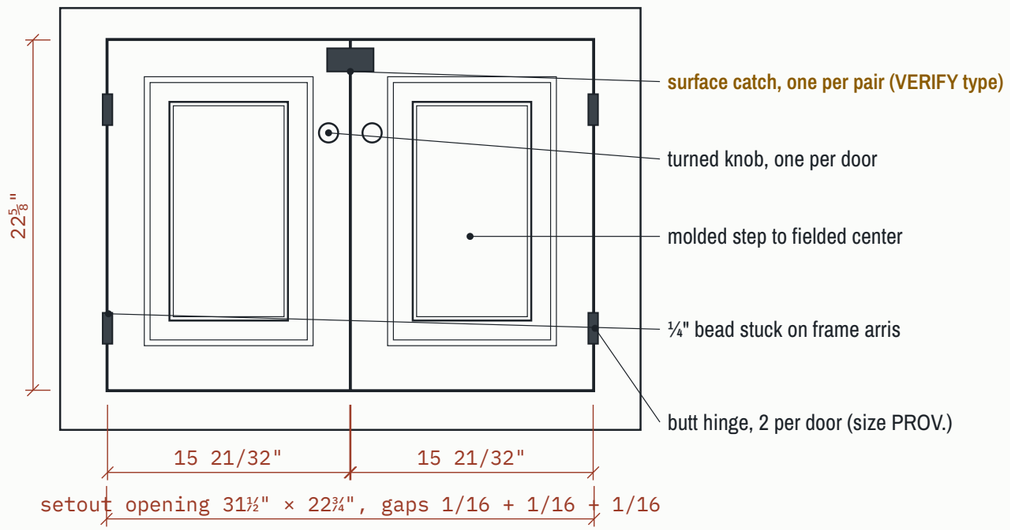
- **Index.** Seats are whole multiples of 1¼" in Z from the level datum, so tooth n is at the same height in every bay. Cut all standards from one story stick. Shelf top = seat + 1" cleat + ¾" core = seat + 1¾". All upper standards are 63 9/16" (Z 36⅛ to 99 11/16), front and rear, in every bay. Cupboard standards are 25¾" (Z 8¼ to 34).
- **Attachment.** Glue plus #8 × 1¼" screws at 6" centers, staggered 3" between the two faces of each ¾" partition or divider core. Each strip gets glue plus #8 × 1¼" screws (entering ½"), offset from the screws in the strip on the other face so they can't meet.
- **Deflection** (estimate, not a rating). Assumptions as Rev E: 25 lb/ft sustained, birch ply core E ≈ 1.1 Mpsi, poplar edging and rail E 1.58 Mpsi, full composite action, simple span between cleat bearing centers, long-term = initial × 2.0, limit 0.02"/ft. Rev G.2 cores run panel to panel (32¼ side, 34⅜ widest center), spans ≈ 31.6" and 33.7". Scaling the Rev E results by (span ratio)⁴: side ≈ 0.039 long-term (limit 0.053), widest center ≈ 0.051 (0.056), widest cupboard ≈ 0.045 (0.052). The center shelves are close to the limit: load the test bay with the heaviest books (FV19). Every shelf keeps its rear rail; confirm on the test bay.
- **Test bay.** Load it with real books, measure initial sag, then re-measure after 30 days (FV19). Rehearse the tilt-out on the test bay before cutting all shelves.

06 Doors, opening bead and hardware

as noted · profiles PROVISIONAL PROFILE until traced from the cupboard

Door type D07: inset frame-and-panel, ⅞" thick, 22⅝" tall in Rev G (the 3½" cabinet lift comes out of the door height; the ledge stays at 36"), broad quiet frame (stiles and top rail 2¾", bottom rail 3¼"), a fine ovolo stuck on the frame's inner edge, a broad flat panel margin, and a narrow molded step to a fielded center. That layering is what the cupboard photographs show. Every radius and step is provisional until a contour-gauge tracing of the cupboard is made. Whether the cupboard's moldings are stuck or applied isn't visible in the photos; inspect it before choosing construction. Applied molding is acceptable if it doesn't lock the panel.

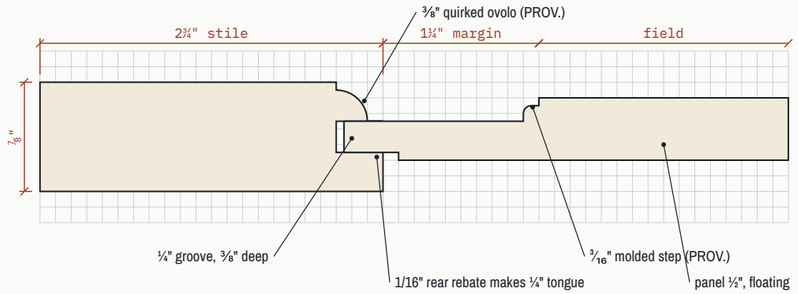
A CENTRAL PAIR IN ITS BEADED OPENING



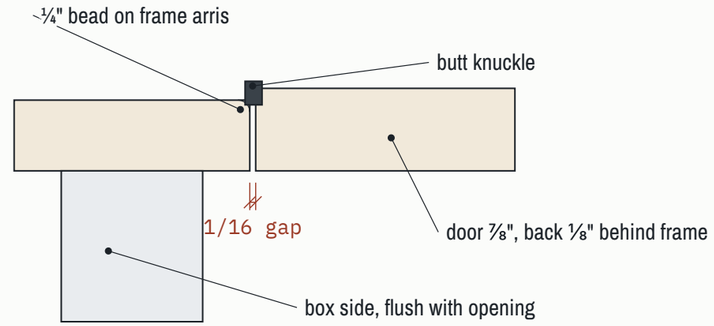
B DOOR SCHEDULE

DOORS	LOCATION	SETOUT OPENING	QTY	DOOR W × H	RAIL BLANK (INCL. 1¼" TENONS)	PANEL W × H (FLOATING)	STATUS
D1–D4	Side cupboards 1, 5	30½" × 22¾"	4	15 5/32" × 22⅝"	12 5/32"	10 7/32" × 17 5/16"	PROV. recheck after hinge and paint trial · outer leaves restrained at 90°
D5–D8	Cupboards 2, 4	32¼" × 22¾"	4	16 1/32" × 22⅝"	13 1/32"	11 3/32" × 17 5/16"	PROV. recheck after hinge and paint trial · hinges to 135°
D9–D10	Center cupboard 3	31½" × 22¾"	2	15 21/32" × 22⅝"	12 21/32"	10 23/32" × 17 5/16"	PROV. recheck after hinge and paint trial · hinges to 135°

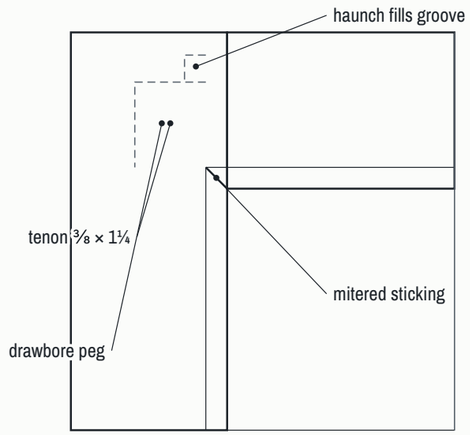
C SECTION THROUGH STILE AND PANEL



D HINGE EDGE AND OPENING BEAD, PLAN SECTION



E CORNER JOINT, TOP RAIL TO STILE



Long haunched mortise-and-tenon: ⅜" tenon, 1¼" long. The haunch fills the panel groove at the stile end. The stile's sticking is cut away at the joint and the rail's sticking is mitered to it, so the rail's front shoulder is ⅜" longer than its back shoulder. This is a different joint from cope-and-stick and is drawn as such. Pegs are optional: if used, a ¼" functional drawbore peg ⅝" from the shoulder, through the stile clear of the sticking. The cupboard photos don't show whether it is pegged, so no fake pegs.

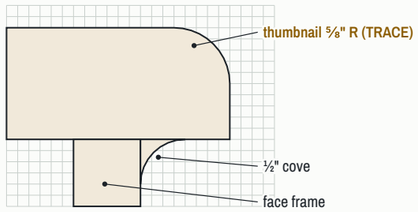
Panel. ½" solid poplar, grain vertical, floating, with no glue in the grooves. A 3/16" front step leaves a 5/16" margin; a 1/16" rear rebate at the edge makes the ¼" tongue (the Rev B "back flat" note was wrong). Width clearance is set for movement: flat-sawn yellow-poplar, tangential coefficient 0.00289 per 1% MC (Wood Handbook), assumed 4% seasonal MC range, gives about ⅛" across an 11" panel. So the panel is cut 3/16" under full groove depth overall, made at mid-range MC measure room MC.

Hardware (one coherent finish, owner's choice) PROVISIONAL: two butt hinges per door (start from 2" × 1⅝" loose-pin; final size from door weight, ⅞" thickness and bead clearance), one turned knob per door, one surface catch per pair across the meeting stiles, and an elbow catch inside the passive (left) leaf. The left leaf closes first and is held by the elbow catch; the right leaf carries the surface catch. Check from the cupboard photos whether its catch slides or turns before buying; a product labeled Eastlake (S9) is a style reference only. No escutcheons, since there are no locks. Slotted screws where visible. Rev G.1 shelf removal (05S, C2): the outer cupboards (1, 5) need the doors at 90°, so fit an opening restraint on their two outer leaves to keep them off the side walls; the middle cupboards (2–4) need the doors at 135°, so their hinges must allow it. Loose-pin butts allow about 170° before the knob meets the neighboring door.

07 Molding profiles

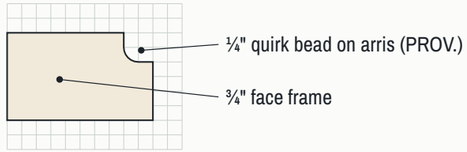
enlarged · grid = ⅛" · all PROVISIONAL PROFILE pending tracings

P1 WAIST LEDGE EDGE



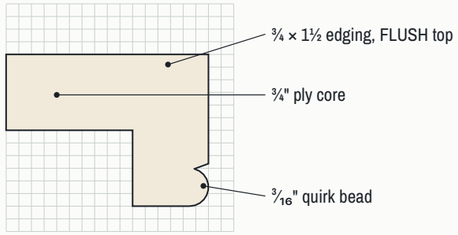
1¼" thick, 1" overhang, top arris rounded. Replace with a tracing of the cupboard ledge (IMG_6271) before milling. Fixed in the rear 3¾" zone only; screws in ½" slots elsewhere (sheet 05E) let it move across its depth.

P2 OPENING BEAD (FACE FRAME)



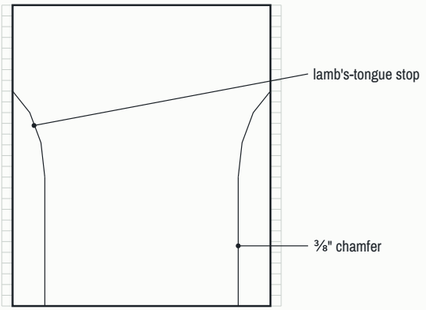
Stuck on the opening edge of stiles and rails and mitered at the corners, as at the cupboard openings (IMG_6271, 6272). It is cut into the frame, so the setout opening and door sizes are unchanged.

P3 FLUSH SHELF EDGE (UPPER)



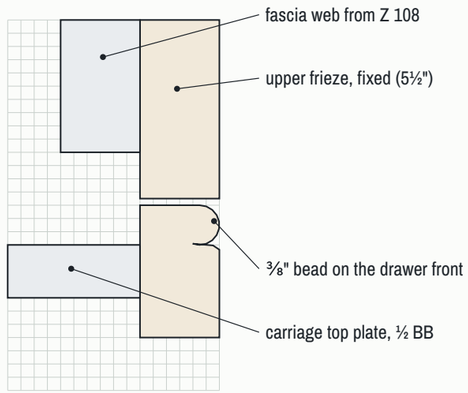
Top of edging exactly flush with the shelf top: no stop, lip or fence (D03). Glued with a ¼" ply spline in matching grooves; ends square and painted. The 1½" depth hangs ¾" below the core and is set by deflection (sheet 05S). Cupboard shelves use the same detail at 1¼".

P4 STILE CHAMFER AND STOP



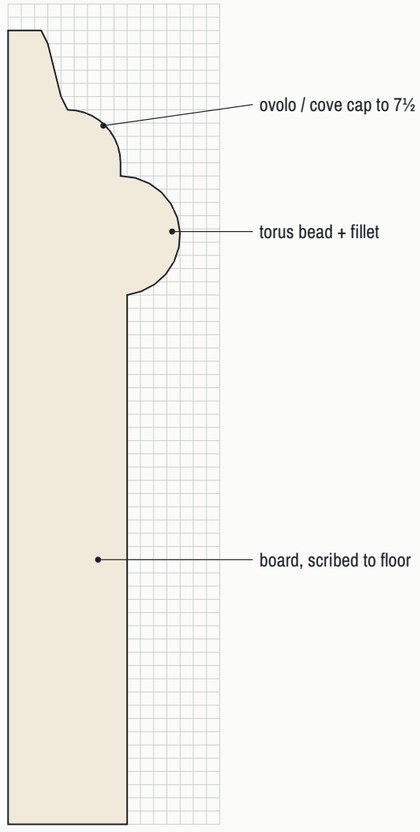
⅜" chamfer on the room-side arrises of the 3" principal stiles (room side only on the 2½" end stiles). Starts 3½" above the ledge and stops 3½" below the frieze in a lamb's-tongue run-out. No caps or plinth blocks (D08).

P5 DRAWER-FRONT JOINT (REV F.2)



The bead stays on the drawer front, so the joint line hides in its quirk with a paint-free 1/16" gap at Z 107½. No keeper, screws or end blocks: the front is fixed to the carriage through vertically slotted holes and slides straight out with it.

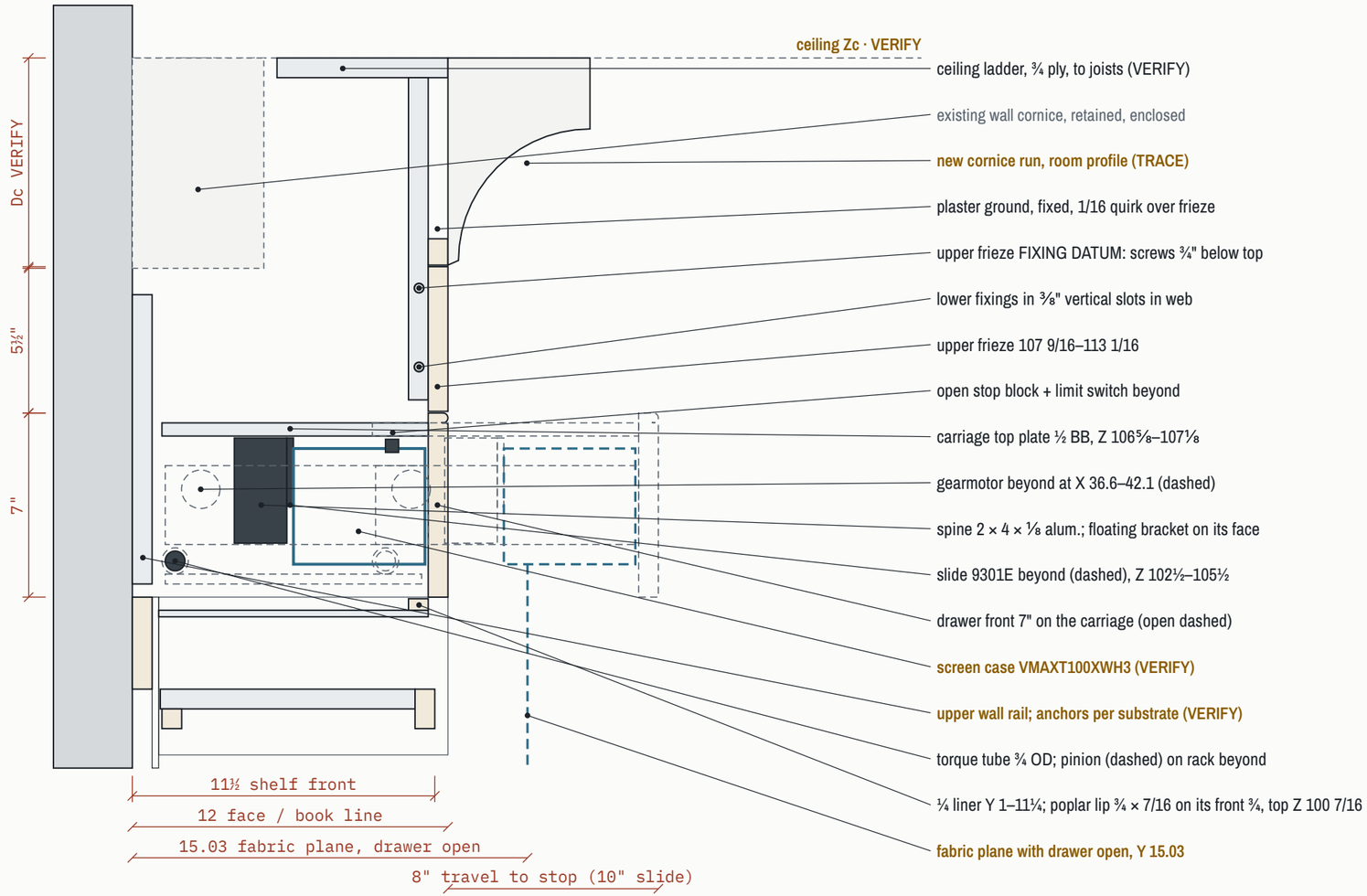
P6 ROOM BASE (OWNER PROFILE)



From the owner's photo with a tape (2 Nov 2026): 7½" overall, flat to about 5". Heights measured; projections PROVISIONAL until a contour tracing of the room base (FV6). The same base runs across the cabinets (on a 9/16 backer) and continues along both side walls. The upper frieze's incised line (⅛" V at Z 111½) is unchanged.

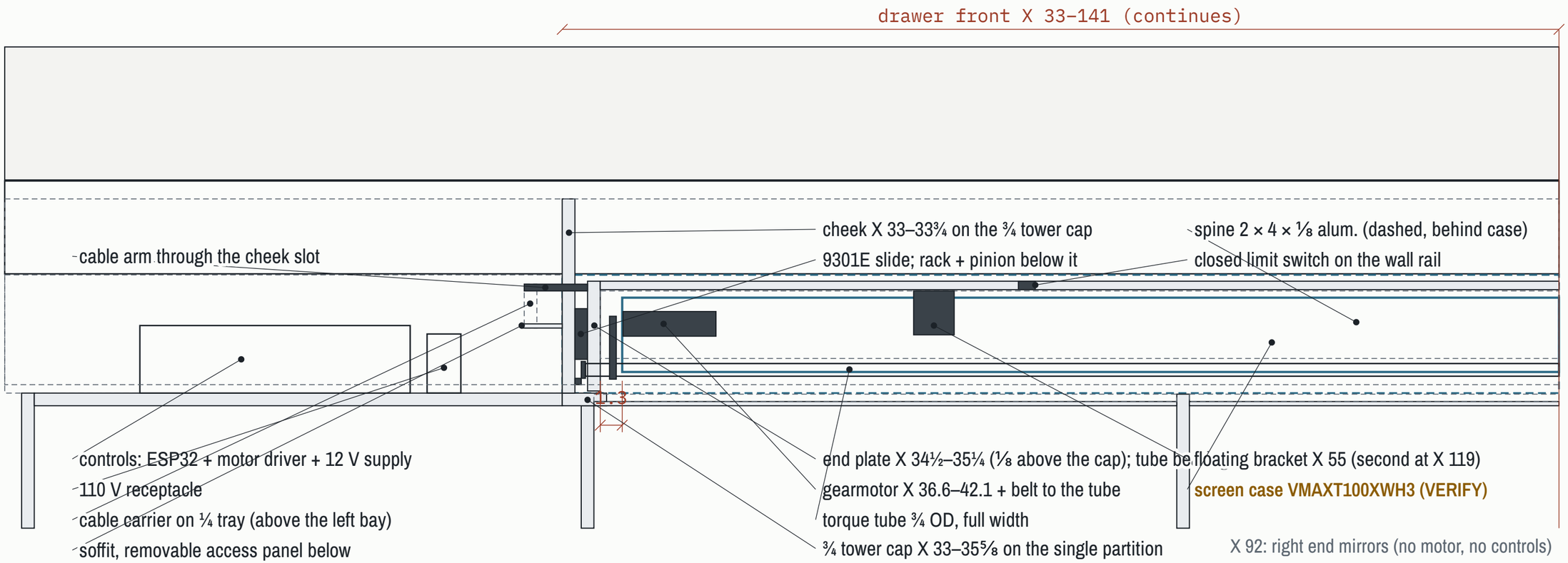
08 Frieze, screen drawer and cornice section

center bay, approx. 1¼" = 1'-0" · drawer closed solid, open dashed

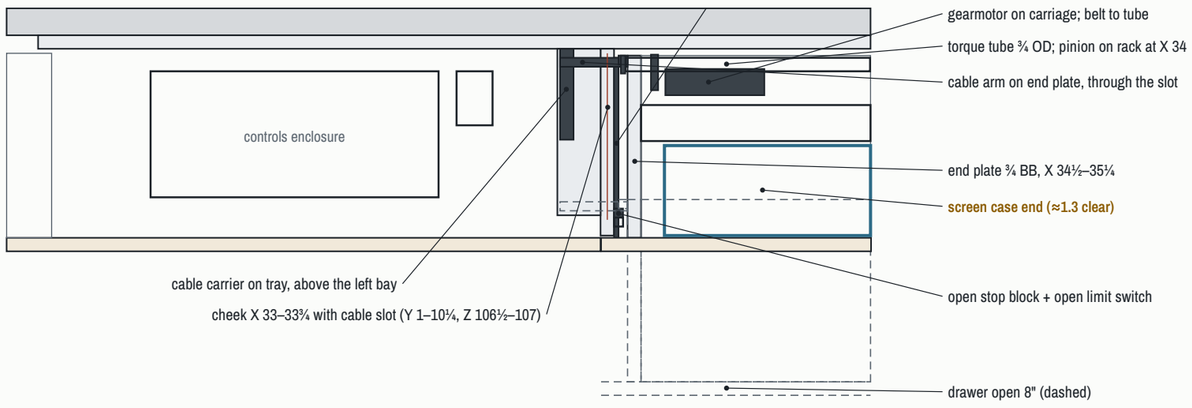


- **Screen support** (Rev F.2/G, replaces the Rev E carrier beam, bearing caps, gussets, hangers, tie-backs and T8 blocks). The screen hangs on the manufacturer's two floating brackets, 64" apart at X 55 and 119, bolted to a 2 × 4 × ⅛ 6061-T6 aluminum tube spine (Y 3⅞–5⅞, Z 102.55–106.55, X 35¼–138¾; calculated sag ≈ 0.05"). The spine is bolted between two ¾" Baltic-birch end plates (X 34½–35¼ and 138¾–139½), closed on top by a ½" Baltic-birch top plate (Z 106⅝–107⅛) and in front by the painted drawer front. The carriage runs on one pair of Accuride 9301E-10 slides whose fixed members screw to ¾" Baltic-birch cheek plates (X 33–33¾ and 140¼–141) standing on ¾" plywood tower caps (Rev G.2: X 33–35⅝ and 138⅜–141, Z 99¾–100½) that are screwed down into the single tower partitions, and screwed to the upper wall rail. The carriage end plates run ⅛" above the caps. Load path: case → brackets → spine → end plates → slides → cheeks → tower caps and partitions, wall rail and top frame.
- **Screen** VERIFY on delivery: Elite Screens VMAX Tab-Tension 3, VMAXT100XWH3, 100" 16:9, motorized, 28.5 lb. Case 100.9" long including end caps, 5.0" deep × 4.8" with bracket; fabric 93.5" wide, 0.9" in front of the mounting face; weight bar 98.7"; case-to-fabric-bottom 57.9" with 6.0"/2.0" black borders. The carriage interior is 103½", leaving about 1.3" at each end.
- **Clearance logic.** Books stand flush with the shelf fronts (Y 11½); the book line allows ½" for lean (Y 12). Closed, the fabric plane is at Y 7.03 inside the carriage. The drawer travels 8" to a positive stop (2" of slide reserve), so the open fabric plane is at Y 15.03, 3.0" clear of the book line, and drops to a bar bottom at Z 43.1, 7" above the waist ledge. Image Z ≈ 45.85–94.85. No raised book stops anywhere D03.
- **Frieze.** The drawer front is a plain 7" board (no finger-pull rebate: the drawer is motorized). The joint between the bands moves up 1½" to Z 107½ so the case, bracket and stowed bar fit inside the 7" drawer front (case bottom Z 101.75; nothing hangs below Z 100½). The upper frieze is 5½" (Z 107 9/16–113 1/16), fixed by a row of screws through the fascia web ¾" below its top (its datum); the lower row runs in ⅜" vertical slots. The incised line stays at Z 111½. The fixed lower-frieze ends (X 0–33, 141–174) are 7" tall to match.
- **Center-bay top.** ¼" painted plywood pocket liners close each center bay at Z 99¾–100, full depth Y 1–11¼ (10¼" deep), with a painted poplar lip ¾ × 7/16 (Y 10½–11¼, Z 100–100 7/16) sitting on top of each liner's front ¾". The lip top is 1/16" under the drawer front, flush with the stile and divider tops, and closes the ½" slot that showed between liner and drawer front from below. Divider and principal-stile tops are held at Z 100 7/16, 1/16" under the drawer front.

A LONGITUDINAL SECTION LOOKING AT THE WALL, LEFT HALF (DRAWER CLOSED)



B LEFT END, PLAN AT Z ≈ 104 (CLOSED SOLID, OPEN DASHED)



Drive. A 12 V planetary gearmotor with encoder (goBILDA 5203 Yellow Jacket 188:1, 30 rpm, or Pololu 37D) rides on the carriage behind the spine at the left end (X 36.6–42.1, axis Y 2.6, Z 104.6), hung from the top plate on a ⅛" aluminum mount. A 1:1 timing belt drives the ¾" OD steel torque tube (Y 1⅝, Z 101⅞), which runs the full width in flange bearings on the end plates. A 1" pitch-diameter pinion on each end of the tube engages a steel rack screwed to each cheek, below the slide (Z 101–101⅜). Because both pinions are on one tube, the motor drives the drawer and keeps the 108" front square at the same time. Speed ≈ 1.6"/s: 8" in about 5 s.

Limits and stops. Closed: a roller-lever micro switch on the upper wall rail at X 60 is tripped by the carriage top plate. Open: a micro switch behind the rubber-faced stop block on the left cheek. The steel stop tab on the carriage meets the block at exactly 8" (the hard stop stays as the mechanical backup). Wire both switches normally closed so a broken wire stops the motor. Add a stall timeout and current limit in firmware.

Wiring path. Power and low-voltage wiring run in the wall behind the cabinet (owner, Rev G.2); there is no chase in the towers. A nylon cable carrier (10 × 15 mm) lies above the left bay on a ¼" tray screwed to the cheek (Z 104⅜). Its moving end is an aluminum arm bolted to the left end plate that passes through a ½" × 9¼" slot in the left cheek (Y 1–10¼, Z 106½–107). It carries the motor, encoder and screen power/trigger leads.

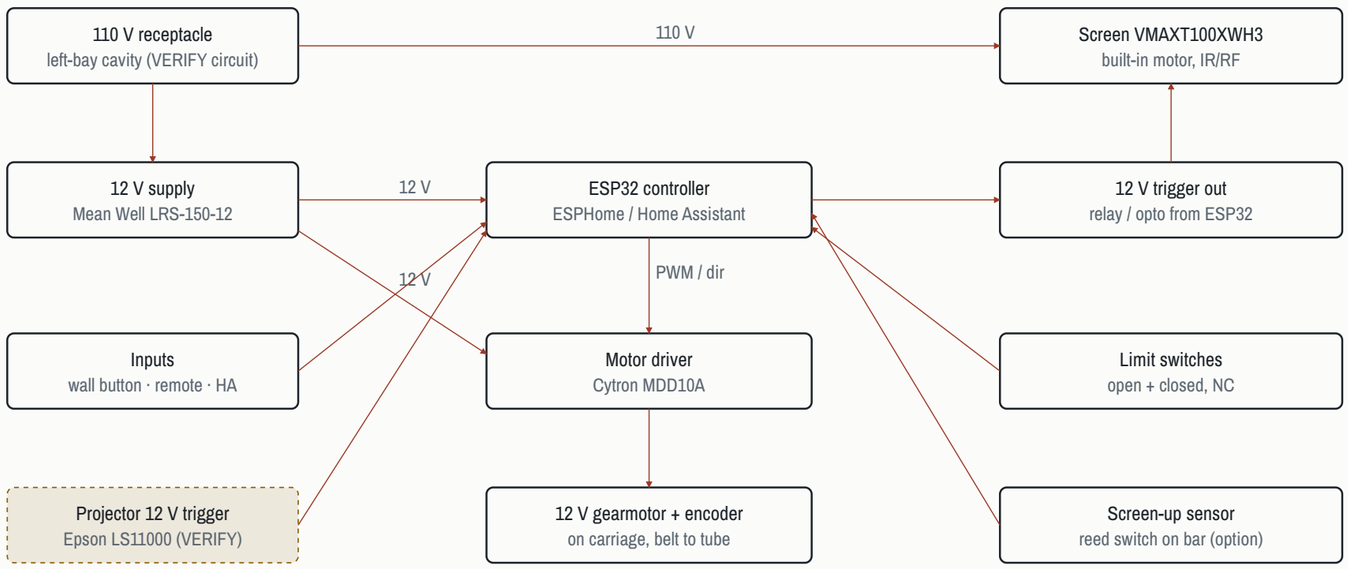
Controls (above the left bay, X 8–24, Y 2–9, on the soffit): an ESP32 controller, a Cytron MDD10A motor driver and a Mean Well LRS-150-12 12 V supply in one ventilated enclosure, with a duplex 110 V receptacle beside it (X 25–27) for the 12 V supply and the screen. Reached through a removable panel in the left-bay soffit. The 110 V circuit is to code by a licensed electrician where required VERIFY.

Sequence. Open: the drawer runs out to the open limit, then the controller gives the screen its 12 V trigger and the screen lowers. Close: the trigger drops and the screen rises fully (screen-up reed switch or timed), then the drawer runs in to the closed limit. The drawer never closes with the fabric down. Inputs: wall button, IR/RF remote, Home Assistant, or the projector's 12 V trigger output (Epson LS11000 trigger output not confirmed, FV11).

Service. With the drawer open, lift the case off its two floating brackets and lower it about 10" out through the open bottom of the carriage; reverse to reinstall. The motor, belt and limit switches are reached the same way.

Parts and budget: *Rev G (current)/Motorized-Screen-Drawer-Budget-RevG.xlsx* (links to every part, DIY install).

C CONTROL DIAGRAM



Open: drawer out to the open limit → trigger on → screen lowers. Close: trigger off → screen fully up (sensor or timed) → drawer in to the closed limit.

Firmware: soft start/stop ramps, stall timeout and current limit; the drawer never moves while the screen is down. Parts and links: Motorized-Screen-Drawer-Budget-RevG.xlsx.

A Plywood (CNC parts; DXF/STEP in CNC Files)

ID	PART	QTY	T	W	L	MATERIAL	GRAIN	MACHINING AND SHOP OPERATIONS	REV G CHANGE	FLAGS
P1.F	Platform front rails (Rev G: no AV intake notches)	2	3/4	7 3/8	85 1/4	0.75" ply	along length		Rev G: height 3 7/8 -> 7 3/8; Rev F notched pair P1.F1/P1.F2 replaced by two plain rails	VERIFY floor; shim to level; Rev E 86 1/4 vs model 85 1/4 (decision 4); Rev G: 7 3/8 tall, notches removed
P1.R	Platform rear rails	2	3/4	7 3/8	85 1/4	0.75" ply	along length		Rev G: height 3 7/8 -> 7 3/8	VERIFY floor; shim to level; Rev E 86 1/4 vs model 85 1/4 (decision 4)
P2	Platform crossmembers	15	3/4	7 3/8	11 3/4	0.75" ply	along length	Place one under each box side (10) and one at mid-span under each box (5). Boxes do not share sides (1 1/2 spacer gap between boxes), so 10 + 5 = 15.	Rev G: height 3 7/8 -> 7 3/8	VERIFY floor; Changed from Rev E qty 13 and model qty 10
P5.1	Base backer / nailer behind the room base, piece 1 of 2	1	1/2	7 3/8	87	0.5" ply	along length	Face-fixed to the front platform rails; the room base is nailed to it		Model thickness 9/16: cut from 1/2 ply and shim 1/16 to the base line Y 14 15/16 (decision 18); Rev G new part ... (full text in the CSV)
P5.2	Base backer / nailer behind the room base, piece 2 of 2	1	1/2	7 3/8	87	0.5" ply	along length	Face-fixed to the front platform rails; the room base is nailed to it		Model thickness 9/16: cut from 1/2 ply and shim 1/16 to the base line Y 14 15/16 (decision 18); Rev G new part ... (full text in the CSV)
B2.1	Base box 1 sides	2	3/4	13 1/4	27 1/4	0.75" ply	along length	Rabbet for bottom, inside face, along bottom edge: 23/32 wide (ACTUAL_THICKNESS) x 1/4 deep, full 13 1/4 depth. Handed pair: rabbet on the face toward the box inside. Bottom glued and screwed through the sides; box ... (full text in the CSV)	Rev G: height 30 3/4 -> 27 1/4 (box raised 3 1/2 onto the 7 1/2 room base line)	Changed from Rev E: dado -> bottom-edge rabbet (owner decision 9)
B3.1	Base box 1 bottom	1	3/4	13 1/4	31 1/16	0.75" ply	along length	Length = box width 32 - 2 x ACTUAL_THICKNESS + 2 x 1/4 rabbet depth	size unchanged in Rev G	
B4.1F	Base box 1 front stretcher	1	3/4	3 1/2	30 9/16	0.75" ply	along length	Ledge slots 1/4 wide x 1/2 long (1/4 bit), running front-to-back (#10 pan-head + 3/4 OD washer, 5/16 travel), 4 fixing points at 2, 10 27/32, 19 23/32, 28 9/16 from left end, centered on width		
B4.1B	Base box 1 back stretcher (ledge fixed datum)	1	3/4	3 1/2	30 9/16	0.75" ply	along length	#10 clearance holes 13/64 dia through (DXF layer DRILL_3/16), 4 fixing points at 2, 10 27/32, 19 23/32, 28 9/16 from left end, centered on width		
B6.1	Cupboard 1 shelf core (notched)	1	3/4	11 7/16	30 3/8	0.75" ply	along length	CUT_OUTSIDE includes four corner notches, each 3/4 deep along the length: rear notches from the back edge to 1 1/2, front notches from 9 13/16 to the front edge (1 5/8 long). They clear the 3/4 sawtooth standards with ... (full text in the CSV)	Rev G.1: opening - 1/8 (was opening - 2) with four corner notches; sits on sawtooth cleats	Rev G.1 change
B5.1	Base box 1 back	1	1/4	32	27 1/4	0.25" ply	along length	Applied flat over box sides and rails, no rabbet (decision 10)	Rev G: height 30 3/4 -> 27 1/4	
B2.2	Base box 2 sides	2	3/4	13 1/4	27 1/4	0.75" ply	along length	Rabbet for bottom, inside face, along bottom edge: 23/32 wide (ACTUAL_THICKNESS) x 1/4 deep, full 13 1/4 depth. Handed pair: rabbet on the face toward the box inside. Bottom glued and screwed through the sides; box ... (full text in the CSV)	Rev G: height 30 3/4 -> 27 1/4 (box raised 3 1/2 onto the 7 1/2 room base line)	Changed from Rev E: dado -> bottom-edge rabbet (owner decision 9)
B3.2	Base box 2 bottom	1	3/4	13 1/4	32 13/16	0.75" ply	along length	Length = box width 33 3/4 - 2 x ACTUAL_THICKNESS + 2 x 1/4 rabbet depth	size unchanged in Rev G	
B4.2F	Base box 2 front stretcher	1	3/4	3 1/2	32 5/16	0.75" ply	along length	Ledge slots 1/4 wide x 1/2 long (1/4 bit), running front-to-back (#10 pan-head + 3/4 OD washer, 5/16 travel), 4 fixing points at 2, 11 7/16, 20 7/8, 30 5/16 from left end, centered on width		
B4.2B	Base box 2 back stretcher (ledge fixed datum)	1	3/4	3 1/2	32 5/16	0.75" ply	along length	#10 clearance holes 13/64 dia through (DXF layer DRILL_3/16), 4 fixing points at 2, 11 7/16, 20 7/8, 30 5/16 from left end, centered on width		
B6.2	Cupboard 2 shelf core (notched)	1	3/4	11 7/16	32 1/8	0.75" ply	along length	CUT_OUTSIDE includes four corner notches, each 3/4 deep along the length: rear notches from the back edge to 1 1/2, front notches from 9 13/16 to the front edge (1 5/8 long). They clear the 3/4 sawtooth standards with ... (full text in the CSV)	Rev G.1: opening - 1/8 (was opening - 2) with four corner notches; sits on sawtooth cleats	Rev G.1 change
B5.2	Base box 2 back	1	1/4	33 3/4	27 1/4	0.25" ply	along length	Applied flat over box sides and rails, no rabbet (decision 10)	Rev G: height 30 3/4 -> 27 1/4	
B2.3	Base box 3 sides	2	3/4	13 1/4	27 1/4	0.75" ply	along length	Rabbet for bottom, inside face, along bottom edge: 23/32 wide (ACTUAL_THICKNESS) x 1/4 deep, full 13 1/4 depth. Handed pair: rabbet on the face toward the box inside. Bottom glued and screwed through the sides; box ... (full text in the CSV)	Rev G: height 30 3/4 -> 27 1/4 (box raised 3 1/2 onto the 7 1/2 room base line)	Changed from Rev E: dado -> bottom-edge rabbet (owner decision 9)
B3.3	Base box 3 bottom	1	3/4	13 1/4	32 1/16	0.75" ply	along length	Length = box width 33 - 2 x ACTUAL_THICKNESS + 2 x 1/4 rabbet depth; solid panel, no through-cuts	Rev F.1: three 27 x 2 vent cut-outs removed; size unchanged in Rev G	Rev F.1 change: vent cut-outs removed; solid panel (owner, 2 Nov 2026)
B4.3F	Base box 3 front stretcher	1	3/4	3 1/2	31 9/16	0.75" ply	along length	Ledge slots 1/4 wide x 1/2 long (1/4 bit), running front-to-back (#10 pan-head + 3/4 OD washer, 5/16 travel), 4 fixing points at 2, 11 3/16, 20 3/8, 29 9/16 from left end, centered on width		
B4.3B	Base box 3 back stretcher (ledge fixed datum)	1	3/4	3 1/2	31 9/16	0.75" ply	along length	#10 clearance holes 13/64 dia through (DXF layer DRILL_3/16), 4 fixing points at 2, 11 3/16, 20 3/8, 29 9/16 from left end, centered on width		
B6.3	Cupboard 3 shelf core (notched)	1	3/4	11 7/16	31 3/8	0.75" ply	along length	CUT_OUTSIDE includes four corner notches, each 3/4 deep along the length: rear notches from the back edge to 1 1/2, front notches from 9 13/16 to the front edge (1 5/8 long). They clear the 3/4 sawtooth standards with ... (full text in the CSV)	Rev G.1: opening - 1/8 (was opening - 2) with four corner notches; sits on sawtooth cleats	Rev G.1 change
B5.3	Base box 3 back	1	1/4	33	27 1/4	0.25" ply	along length	Applied flat over box sides and rails, no rabbet (decision 10)	Rev G: height 30 3/4 -> 27 1/4	Rev G: AV removable-back frame dropped (no AV in cupboard 3)

ID	PART	QTY	T	W	L	MATERIAL	GRAIN	MACHINING AND SHOP OPERATIONS	REV G CHANGE	FLAGS
B2.4	Base box 4 sides	2	3/4	13 1/4	27 1/4	0.75" ply	along length	Rabbet for bottom, inside face, along bottom edge: 23/32 wide (ACTUAL_THICKNESS) x 1/4 deep, full 13 1/4 depth. Handed pair: rabbet on the face toward the box inside. Bottom glued and screwed through the sides; box ... (full text in the CSV)	Rev G: height 30 3/4 -> 27 1/4 (box raised 3 1/2 onto the 7 1/2 room base line)	Changed from Rev E: dado -> bottom-edge rabbet (owner decision 9)
B3.4	Base box 4 bottom	1	3/4	13 1/4	32 13/16	0.75" ply	along length	Length = box width 33 3/4 - 2 x ACTUAL_THICKNESS + 2 x 1/4 rabbet depth	size unchanged in Rev G	
B4.4F	Base box 4 front stretcher	1	3/4	3 1/2	32 5/16	0.75" ply	along length	Ledge slots 1/4 wide x 1/2 long (1/4 bit), running front-to-back (#10 pan-head + 3/4 OD washer, 5/16 travel), 4 fixing points at 2, 11 7/16, 20 7/8, 30 5/16 from left end, centered on width		
B4.4B	Base box 4 back stretcher (ledge fixed datum)	1	3/4	3 1/2	32 5/16	0.75" ply	along length	#10 clearance holes 13/64 dia through (DXF layer DRILL_3/16), 4 fixing points at 2, 11 7/16, 20 7/8, 30 5/16 from left end, centered on width		
B6.4	Cupboard 4 shelf core (notched)	1	3/4	11 7/16	32 1/8	0.75" ply	along length	CUT_OUTSIDE includes four corner notches, each 3/4 deep along the length: rear notches from the back edge to 1 1/2, front notches from 9 13/16 to the front edge (1 5/8 long). They clear the 3/4 sawtooth standards with ... (full text in the CSV)	Rev G.1: opening - 1/8 (was opening - 2) with four corner notches; sits on sawtooth cleats	Rev G.1 change
B5.4	Base box 4 back	1	1/4	33 3/4	27 1/4	0.25" ply	along length	Applied flat over box sides and rails, no rabbet (decision 10)	Rev G: height 30 3/4 -> 27 1/4	
B2.5	Base box 5 sides	2	3/4	13 1/4	27 1/4	0.75" ply	along length	Rabbet for bottom, inside face, along bottom edge: 23/32 wide (ACTUAL_THICKNESS) x 1/4 deep, full 13 1/4 depth. Handed pair: rabbet on the face toward the box inside. Bottom glued and screwed through the sides; box ... (full text in the CSV)	Rev G: height 30 3/4 -> 27 1/4 (box raised 3 1/2 onto the 7 1/2 room base line)	Changed from Rev E: dado -> bottom-edge rabbet (owner decision 9)
B3.5	Base box 5 bottom	1	3/4	13 1/4	31 1/16	0.75" ply	along length	Length = box width 32 - 2 x ACTUAL_THICKNESS + 2 x 1/4 rabbet depth	size unchanged in Rev G	
B4.5F	Base box 5 front stretcher	1	3/4	3 1/2	30 9/16	0.75" ply	along length	Ledge slots 1/4 wide x 1/2 long (1/4 bit), running front-to-back (#10 pan-head + 3/4 OD washer, 5/16 travel), 4 fixing points at 2, 10 27/32, 19 23/32, 28 9/16 from left end, centered on width		
B4.5B	Base box 5 back stretcher (ledge fixed datum)	1	3/4	3 1/2	30 9/16	0.75" ply	along length	#10 clearance holes 13/64 dia through (DXF layer DRILL_3/16), 4 fixing points at 2, 10 27/32, 19 23/32, 28 9/16 from left end, centered on width		
B6.5	Cupboard 5 shelf core (notched)	1	3/4	11 7/16	30 3/8	0.75" ply	along length	CUT_OUTSIDE includes four corner notches, each 3/4 deep along the length: rear notches from the back edge to 1 1/2, front notches from 9 13/16 to the front edge (1 5/8 long). They clear the 3/4 sawtooth standards with ... (full text in the CSV)	Rev G.1: opening - 1/8 (was opening - 2) with four corner notches; sits on sawtooth cleats	Rev G.1 change
B5.5	Base box 5 back	1	1/4	32	27 1/4	0.25" ply	along length	Applied flat over box sides and rails, no rabbet (decision 10)	Rev G: height 30 3/4 -> 27 1/4	
B9	Box spacers behind stiles, laminated in pairs to 1 1/2	16	3/4	6	24 1/2	0.75" ply	along length		Rev G: length 28 -> 24 1/2 (boxes 3 1/2 shorter); not modeled, confirm against the box height	qty read as 8 spacers x 2 layers (decision 15)
U5	Upper backs, side bays	2	1/4	33 1/2	64 1/2	0.25" ply	along length	Applied flat, no rabbet (decision 10)	Rev G.2: backs re-split on the single partitions (X 1-34 1/2-69 3/4-104 1/4-139 1/2-173): 32 -> 33 1/2 wide	Rev G.2 change
U6	Upper backs, center bays 2 and 4 (seams on the partition and divider)	2	1/4	35 1/4	64 1/2	0.25" ply	along length	Applied flat, no rabbet (decision 10)	Rev G.2: backs re-split on the single partitions (X 1-34 1/2-69 3/4-104 1/4-139 1/2-173): 34 1/2 -> 35 1/4 ... (full text in the CSV)	Rev G.2 change
U6C	Upper back, center bay 3 (seams on the dividers)	1	1/4	34 1/2	64 1/2	0.25" ply	along length	Applied flat, no rabbet (decision 10)	Rev G.2: backs re-split on the single partitions (X 1-34 1/2-69 3/4-104 1/4-139 1/2-173): 34 1/2 (unchanged ... (full text in the CSV)	Rev G.2: split from U6
F5.LU	Countertop left section, upper 3/4 layer	1	3/4	15 1/2	70 1/4	0.75" ply	along length	Laminate 3/4 + 1/2 layers (core ~1 3/16 actual, no shim). Nosing flush at top; the ~1/16 step at the underside sits behind the cove. Section joints: 2 loose tenons + 2 draw bolts per joint (sizes not dimensioned). ... (full text in the CSV)		Changed from Rev E: solid poplar ledge -> laminated ply core. Core depth = 16 finished - 1 1/2 nosing + 1 rear scribe
F5.LL	Countertop left section, lower 1/2 layer	1	1/2	15 1/2	70 1/4	0.5" ply	along length	Laminate 3/4 + 1/2 layers (core ~1 3/16 actual, no shim). Nosing flush at top; the ~1/16 step at the underside sits behind the cove. Section joints: 2 loose tenons + 2 draw bolts per joint (sizes not dimensioned). ... (full text in the CSV)		Changed from Rev E: solid poplar ledge -> laminated ply core. Core depth = 16 finished - 1 1/2 nosing + 1 rear scribe
F5.CU	Countertop center section, upper 3/4 layer	1	3/4	15 1/2	34 1/2	0.75" ply	along length	Laminate 3/4 + 1/2 layers (core ~1 3/16 actual, no shim). Nosing flush at top; the ~1/16 step at the underside sits behind the cove. Section joints: 2 loose tenons + 2 draw bolts per joint (sizes not dimensioned). ... (full text in the CSV)		Changed from Rev E: solid poplar ledge -> laminated ply core. Core depth = 16 finished - 1 1/2 nosing + 1 rear scribe
F5.CL	Countertop center section, lower 1/2 layer	1	1/2	15 1/2	34 1/2	0.5" ply	along length	Laminate 3/4 + 1/2 layers (core ~1 3/16 actual, no shim). Nosing flush at top; the ~1/16 step at the underside sits behind the cove. Section joints: 2 loose tenons + 2 draw bolts per joint (sizes not dimensioned). ... (full text in the CSV)		Changed from Rev E: solid poplar ledge -> laminated ply core. Core depth = 16 finished - 1 1/2 nosing + 1 rear scribe
F5.RU	Countertop right section, upper 3/4 layer	1	3/4	15 1/2	70 1/4	0.75" ply	along length	Laminate 3/4 + 1/2 layers (core ~1 3/16 actual, no shim). Nosing flush at top; the ~1/16 step at the underside sits behind the cove. Section joints: 2 loose tenons + 2 draw bolts per joint (sizes not dimensioned). ... (full text in the CSV)		Changed from Rev E: solid poplar ledge -> laminated ply core. Core depth = 16 finished - 1 1/2 nosing + 1 rear scribe
F5.RL	Countertop right section, lower 1/2 layer	1	1/2	15 1/2	70 1/4	0.5" ply	along length	Laminate 3/4 + 1/2 layers (core ~1 3/16 actual, no shim). Nosing flush at top; the ~1/16 step at the underside sits behind the cove. Section joints: 2 loose tenons + 2 draw bolts per joint (sizes not dimensioned). ... (full text in the CSV)		Changed from Rev E: solid poplar ledge -> laminated ply core. Core depth = 16 finished - 1 1/2 nosing + 1 rear scribe
U2E	End panels (X 1-1 3/4 and 172 1/4-173)	2	3/4	10 1/4	64 1/2	0.75" ply	along length	1/4 ply locating spline groove at bottom edge, rear zone only (edge op; not dimensioned)	Rev G.2: moved 3/4 toward the walls; carry the side-bay strips	Rev G.2 change
U2P	Tower partitions, single 3/4 (X 34 1/8-34 7/8 and 139 1/8-139 7/8)	2	3/4	10 1/4	63 3/4	0.75" ply	along length	Sawtooth strips both faces; 1/4 ply locating spline groove at bottom edge (edge op)	Rev G.2: one 3/4 partition per tower replaces the two 64 1/2 panels with a 1 1/2 cavity	Rev G.2 change

ID	PART	QTY	T	W	L	MATERIAL	GRAIN	MACHINING AND SHOP OPERATIONS	REV G CHANGE	FLAGS
U3	Center divider cores, single 3/4	2	3/4	10 1/4	64 7/16	0.75" ply	along length	Sawtooth strips both faces; locating spline groove at bottom edge (edge op)	Rev G.2: one 3/4 core per divider (was 2 layers 64 7/16 x 11 laminated); depth 11 -> 10 1/4	Rev G.2 change
U4C	Tower caps (under the drawer cheeks)	2	3/4	10 1/4	2 5/8	0.75" ply	along width	Screwed down into the partition; the drawer cheek DR1 stands on it		Rev G.2 new part
U4	Tower soffits (side bays)	2	3/4	10 1/4	31 1/4	0.75" ply	along length	LEFT soffit (U4 L): removable access panel for the drawer controls enclosure above it (size and fixing set on site; not in the DXF)	Rev G.2: 30 1/2 -> 31 1/4 long	Rev G: controls enclosure (ESP32, motor driver, 12 V supply) and outlet sit on the left soffit
U9L	Side-bay shelf cores, LEFT bay 1 (notched)	4	3/4	9 11/16	32 1/4	0.75" ply	along length	CUT_OUTSIDE includes four corner notches, each 3/4 deep along the length: rear notches from the back edge to 1 1/2, front notches from 8 1/16 to the front edge (1 5/8 long). They clear the 3/4 sawtooth standards with ... (full text in the CSV)	Rev G.2: 28 3/4 -> 32 1/4 (interior - 1/8; single partitions widen the interiors) with four corner notches; ... (full text in the CSV)	Rev G.2 change; HANDED by edging position
U10L	Center-bay shelf cores, bay 2 (notched)	4	3/4	9 11/16	34 3/8	0.75" ply	along length	CUT_OUTSIDE includes four corner notches, each 3/4 deep along the length: rear notches from the back edge to 1 1/2, front notches from 8 1/16 to the front edge (1 5/8 long). They clear the 3/4 sawtooth standards with ... (full text in the CSV)	Rev G.2: 31 1/4 -> 34 3/8 (interior - 1/8; single partitions widen the interiors) with four corner notches; ... (full text in the CSV)	Rev G.2 change; HANDED by edging position
U10C	Center-bay shelf cores, bay 3 (notched)	4	3/4	9 11/16	33 5/8	0.75" ply	along length	CUT_OUTSIDE includes four corner notches, each 3/4 deep along the length: rear notches from the back edge to 1 1/2, front notches from 8 1/16 to the front edge (1 5/8 long). They clear the 3/4 sawtooth standards with ... (full text in the CSV)	Rev G.2: 31 1/4 -> 33 5/8 (interior - 1/8; single partitions widen the interiors) with four corner notches; ... (full text in the CSV)	Rev G.2 change
U10R	Center-bay shelf cores, bay 4 (notched)	4	3/4	9 11/16	34 3/8	0.75" ply	along length	CUT_OUTSIDE includes four corner notches, each 3/4 deep along the length: rear notches from the back edge to 1 1/2, front notches from 8 1/16 to the front edge (1 5/8 long). They clear the 3/4 sawtooth standards with ... (full text in the CSV)	Rev G.2: 31 1/4 -> 34 3/8 (interior - 1/8; single partitions widen the interiors) with four corner notches; ... (full text in the CSV)	Rev G.2 change; HANDED by edging position
U9R	Side-bay shelf cores, RIGHT bay 5 (notched)	4	3/4	9 11/16	32 1/4	0.75" ply	along length	CUT_OUTSIDE includes four corner notches, each 3/4 deep along the length: rear notches from the back edge to 1 1/2, front notches from 8 1/16 to the front edge (1 5/8 long). They clear the 3/4 sawtooth standards with ... (full text in the CSV)	Rev G.2: 28 3/4 -> 32 1/4 (interior - 1/8; single partitions widen the interiors) with four corner notches; ... (full text in the CSV)	Rev G.2 change; HANDED by edging position
SP1	Bay-top liner (soffit under the screen drawer), center bay 2 (X 35 5/8-69 3/8)	1	1/4	10 1/4	33 3/4	0.25" ply	along length		Rev G: full-depth liner (no screen slot); Rev G.2: 33 -> 33 3/4 long (between cap and divider cores)	Rev G.2 change
SP2	Bay-top liner (soffit under the screen drawer), center bay 3 (X 70 1/8-103 7/8)	1	1/4	10 1/4	33 3/4	0.25" ply	along length		Rev G: full-depth liner (no screen slot); Rev G.2: 33 -> 33 3/4 long (between cap and divider cores)	Rev G.2 change
SP3	Bay-top liner (soffit under the screen drawer), center bay 4 (X 104 5/8-138 3/8)	1	1/4	10 1/4	33 3/4	0.25" ply	along length		Rev G: full-depth liner (no screen slot); Rev G.2: 33 -> 33 3/4 long (between cap and divider cores)	Rev G.2 change
T1	Ceiling ladder plates	2	3/4	6 1/2	87 1/2	0.75" ply	along length			VERIFY joists, Pc; model builds a rail-and-rung ladder instead (decision 6)
T2	Fascia web	2	3/4	12 1/4	87 1/2	0.75" ply	along length	Fixings for the fixed upper frieze (positions not dimensioned)	Rev G: web starts at Z 108 (frieze joint 107 1/2 + 1/2): 13 1/4 -> 12 1/4 wide	VERIFY Zc (width = Zc - 108 3/4); Rev G change
C6.1	Upper wall rail, piece 1 of 2	1	3/4	11	85 1/4	0.75" ply	along length			VERIFY substrate; anchors per substrate; decision 2; carries the drawer cheeks and the closed limit switch
C6.2	Upper wall rail, piece 2 of 2	1	3/4	11	85 1/4	0.75" ply	along length			VERIFY substrate; anchors per substrate; decision 2; carries the drawer cheeks and the closed limit switch
DR1.L	Drawer cheek plate, left (with cable slot)	1	3/4	11 1/2	10 3/8	0.75" ply	along width	CUT_OUTSIDE stepped outline (front edge 10 3/8 deep to 7 1/4 up, then 9 5/8); CUT_INSIDE slot 9 1/4 x 1/2, 1/4-9 1/2 from rear edge, 6-6 1/2 up (model Y 1-10 1/4, Z 106 1/2-107). Inside corners: 1/8 radius from the bit ... (full text in the CSV)		Rev G new part; Rev G.2: stands on tower cap U4C
DR1.R	Drawer cheek plate, right	1	3/4	11 1/2	10 3/8	0.75" ply	along width	CUT_OUTSIDE stepped outline (as DR1.L, no slot); Stands on the tower cap U4C (cheeks at X 33-33 3/4 and 140 1/4-141) and screws to the upper wall rail (rear edge). Slide cabinet member at Z 102 1/2-105 1/2, gear rack at ... (full text in the CSV)		Rev G new part
DR2	Carriage end plates	2	3/4	6 1/2	10 1/8	0.75" ply	along length	CUT_OUTSIDE includes an open U-notch from the BACK edge for the torque tube: 13/16 wide, centered 1 1/4 up from the bottom edge, running 29/32 in from the back edge (tube centerline 1/2 + 13/32) with a round end (model ... (full text in the CSV)		Rev G new part; tube notch replaces a bore that would sit 3/32 from the edge
DR3.1	Carriage top plate, piece 1 of 2	1	1/2	10 1/8	51 3/4	0.5" ply	along length	Screws down into both end plates and the spine; trips the closed limit switch at its rear edge		Rev G new part (1/2 ply; model calls Baltic birch, brief: hardwood ply)
DR3.2	Carriage top plate, piece 2 of 2	1	1/2	10 1/8	51 3/4	0.5" ply	along length	Screws down into both end plates and the spine; trips the closed limit switch at its rear edge		Rev G new part (1/2 ply; model calls Baltic birch, brief: hardwood ply)
DR4	Cable-carrier tray (left side bay cavity)	1	1/4	2 13/32	9 1/4	0.25" ply	along length	Screwed to the outside face of the left cheek (DR1.L) at Z 104 3/8; carries the chain's lower run		Rev G new part
F7	Upright locating splines (one per upright)	6	1/4	1	2	0.25" ply	along length		Rev G.2: 8 -> 6 (6 uprights: 2 end panels, 2 tower partitions, 2 divider cores)	Rev G.2 change

B Solid poplar, room base and millwork

ID	PART	QTY	T	W	L	NOTES	REV G CHANGE	FLAGS
RB1	Room base, 7 1/2, owner profile, field length (runs across the cabinets and returns on both side walls)	1	per owner profile	7 1/2	174 across + side-wall returns (field length; miter the inside corners)	Matches the room's existing base (flat board to ~5, torus, fillet, ovolo cap to 7 1/2); painted cabinet color; nails to the P5 backer. Milled to match / supplied by owner - not CNC. Profile ... (full text in the CSV)	Rev G new: replaces plinth faces P3 and glue blocks P4	Rev G new; owner supplies/mills
B1	Lower hanging rails	2	3/4	3 1/2	170 1/2 (X 1 3/4-172 1/4), 2 pcs per run	Rev G: lower rail at Z 8 1/4-11 3/4 (raised 3 1/2); runs between the outer box sides like the model; joint on a box side; VERIFY wall	Rev G.2: length 174 (+1/2) -> 170 1/2 to match the model	Rev G.2 change
B7.1	Cupboard 1 shelf edging, flush top, full shelf width	1	3/4	1 1/4	30 3/8	1/4 ply spline; quirk bead P3	Rev G.1: full shelf width	Rev G.1 change
B8.1	Cupboard 1 shelf rear rail	1	3/4	3/4	28 3/4	glued under core, between the rear notches	Rev G.1: opening - 1 3/4	Rev G.1 change
B7.2	Cupboard 2 shelf edging, flush top, full shelf width	1	3/4	1 1/4	32 1/8	1/4 ply spline; quirk bead P3	Rev G.1: full shelf width	Rev G.1 change
B8.2	Cupboard 2 shelf rear rail	1	3/4	3/4	30 1/2	glued under core, between the rear notches	Rev G.1: opening - 1 3/4	Rev G.1 change
B7.3	Cupboard 3 shelf edging, flush top, full shelf width	1	3/4	1 1/4	31 3/8	1/4 ply spline; quirk bead P3	Rev G.1: full shelf width	Rev G.1 change
B8.3	Cupboard 3 shelf rear rail	1	3/4	3/4	29 3/4	glued under core, between the rear notches	Rev G.1: opening - 1 3/4	Rev G.1 change
B7.4	Cupboard 4 shelf edging, flush top, full shelf width	1	3/4	1 1/4	32 1/8	1/4 ply spline; quirk bead P3	Rev G.1: full shelf width	Rev G.1 change
B8.4	Cupboard 4 shelf rear rail	1	3/4	3/4	30 1/2	glued under core, between the rear notches	Rev G.1: opening - 1 3/4	Rev G.1 change
B7.5	Cupboard 5 shelf edging, flush top, full shelf width	1	3/4	1 1/4	30 3/8	1/4 ply spline; quirk bead P3	Rev G.1: full shelf width	Rev G.1 change
B8.5	Cupboard 5 shelf rear rail	1	3/4	3/4	28 3/4	glued under core, between the rear notches	Rev G.1: opening - 1 3/4	Rev G.1 change
F1	Face frame end stiles	2	3/4	2 1/2 finished (3 blank)	27 1/4	1 mortises; VERIFY wall	Rev G: 30 3/4 -> 27 1/4 (face frame Z 7 1/2-34 3/4)	
F2	Face frame stiles	4	3/4	3	27 1/4	1 mortises; bead both arrises	Rev G: 30 3/4 -> 27 1/4	
F3.1	Face frame bottom rail, opening 1	1	3/4	2 1/2	32 1/2	1 tenons; sits on the room base line (Z 7 1/2-9 1/2 visible)	Rev G: raised 3 1/2	
F4.1	Face frame top rail, opening 1	1	3/4	2	32 1/2	1 tenons		
F3.2	Face frame bottom rail, opening 2	1	3/4	2 1/2	34 1/4	1 tenons; sits on the room base line (Z 7 1/2-9 1/2 visible)	Rev G: raised 3 1/2	
F4.2	Face frame top rail, opening 2	1	3/4	2	34 1/4	1 tenons		
F3.3	Face frame bottom rail, opening 3	1	3/4	2 1/2	33 1/2	1 tenons; sits on the room base line (Z 7 1/2-9 1/2 visible)	Rev G: raised 3 1/2	
F4.3	Face frame top rail, opening 3	1	3/4	2	33 1/2	1 tenons	Rev G: AV 1 5/8 rail -> 2 like the others	
F3.4	Face frame bottom rail, opening 4	1	3/4	2 1/2	34 1/4	1 tenons; sits on the room base line (Z 7 1/2-9 1/2 visible)	Rev G: raised 3 1/2	
F4.4	Face frame top rail, opening 4	1	3/4	2	34 1/4	1 tenons		
F3.5	Face frame bottom rail, opening 5	1	3/4	2 1/2	32 1/2	1 tenons; sits on the room base line (Z 7 1/2-9 1/2 visible)	Rev G: raised 3 1/2	
F4.5	Face frame top rail, opening 5	1	3/4	2	32 1/2	1 tenons		
F6	Cove under ledge overhang	1	1/2	1/2	174 (+1/2)	glued to face frame only; Rev G runs the full width	Rev G: AV gap removed	
D	Cupboard doors (stiles, rails, panels)	10	7/8	-	door body 22 5/8 tall	frame-and-panel; widths per Rev E D.side/D.2&4/D.center (15 5/32 / 16 1/32 / 15 21/32); bottom rail 2 3/4, top rail 2 1/4, stiles 2 1/4	Rev G: height 26 1/8 -> 22 5/8 (door bottoms raised 3 1/2)	Rev G change
U1	Upper hanging rails	2	3/4	3 1/2	172 (X 1-173)	joints on a panel line; VERIFY wall	Rev G.2: run out to the end panels, X 1-173	Rev G.2 change
U3F	Center divider faces (painted)	2	3/4	2 1/4	64 7/16	X 68 5/8-70 7/8 and 103 1/8-105 3/8, Y 11 1/4-12, Z 36-100 7/16; covers the 3/4 core and both sawtooth strips	Rev G.2 new	Rev G.2 new part
U7	Stile faces, end	2	3/4	2 1/2 finished (3 blank)	64 1/2	chamfer room side P4; VERIFY wall		

ID	PART	QTY	T	W	L	NOTES	REV G CHANGE	FLAGS
U8	Stile faces, principal	2	3/4	3	64 7/16	chamfer both P4; top Z 100 7/16	Rev F delta row U8: 64 1/2 -> 64 7/16	
U11	Upper shelf edging, flush top	20	3/4	1 1/2	8 @ 30 3/8, 8 @ 32 1/2, 4 @ 32 1/8	spans the visible opening less 1/16 each side (strips hidden behind the stiles/divider faces); 1/4 ply spline; quirk bead	Rev G.2: opening - 1/8 (core is wider than the edging)	Rev G.2 change
U12	Upper shelf rear rails	20	3/4	3/4	8 @ 30 5/8, 8 @ 32 3/4, 4 @ 32	glued under core, between the rear notches	Rev G.2: interior - 1 3/4	Rev G.2 change
U13	Cleat keeper blocks	0	1/4	1/4	2	OMITTED in Rev G.1 (traditional cleats need no keepers)	Rev G.1: qty 50 -> 0	Rev G.1 change: OMIT
S1R	Sawtooth standards, upper rear	10	3/4	1 1/2	63 9/16	Z 36 1/8-99 11/16, Y 1-2 1/2; handed		PROV. test bay
S1F	Sawtooth standards, upper front	10	3/4	2 1/16	63 9/16	Z 36 1/8-99 11/16, Y 9 3/16-11 1/4 (run forward to the back of the stiles / divider faces); handed	Rev G.2: 1 1/2 -> 2 1/16 wide (strip runs forward to Y 11 1/4)	Rev G.2 change; PROV. test bay
S2	Sawtooth standards, cupboards	20	3/4	1 1/2	25 3/4	Z 8 1/4-34; handed	Rev G: 29 1/4 -> 25 3/4 (cupboard floor raised 3 1/2)	PROV. test bay; Rev G change
S3	Cleats, side bays (bars)	16	3/4	1	7 9/16	straight 3/4 x 1 bar, front to back between the two standards on one side; 1/2 tongue at each end (bottom 1/4 square, then sloped to match the tooth) seats in the teeth with 1/16 end play; shelf ... (full text in the CSV)	Rev G.1: L-cleat 1 1/2 x 1 x 9 9/16 -> straight bar 3/4 x 1	Rev G.1 change
S4	Cleats, center bays (bars)	24	3/4	1	7 9/16	same as S3	Rev G.1: L-cleat 1 1/2 x 1 x 9 9/16 -> straight bar 3/4 x 1	Rev G.1 change
S5	Cleats, cupboards (bars)	10	3/4	1	9 5/16	same as S3	Rev G.1: L-cleat 1 1/2 x 1 x 11 5/16 -> straight bar 3/4 x 1	Rev G.1 change
T3	Plaster ground	1	3/4	1	174 + returns (+1)	VERIFY ends		
T4	Upper frieze (fixed)	3	3/4	5 1/2	33, 108, 33 (+1/2 end pieces)	Z 107 9/16-113 1/16; incised line Z 111 1/2; 1/16 paint-free joint below	Rev F.2/G: 7 -> 5 1/2 tall (frieze joint raised to 107 1/2)	Rev G change
T5	Lower frieze, fixed ends	2	3/4	7	32 31/32 (+1/2 wall end)	bead top edge; Z 100 1/2-107 1/2	Rev F.2/G: 5 1/2 -> 7 tall	Rev G change
T6	Drawer front (lower frieze, X 33 1/32-140 31/32)	1	3/4	7	107 15/16	bead top edge P5; plain back (no finger-pull rebate: the drawer is motorized); fixed to the carriage through vertically slotted holes. STOCK: one 10 ft 4/4 poplar board, no splice	Rev F.2/G: removable frieze (5 1/2) -> motorized drawer front (7 tall); Rev G.1: finger-pull rebate removed	Rev G change; owner decision 1: poplar
SP5	Bay-top liner lips, center bays 2-4 (painted)	3	3/4	7/16	33 3/4	Glued ON TOP of the front 3/4 of liners SP1-SP3 (liner is full depth Y 1-11 1/4): lip Y 10 1/2-11 1/4, Z 100-100 7/16, full liner length, so no slot shows under the drawer front	Rev G.1 new	Rev G.1 new part
F5N.L	Countertop nosing, left section	1	1 1/4 (5/4)	1 1/2	70 1/4 (69 3/4 + 1/2 wall end)	carries R5/8 thumbnail; flush with ply core at top; glued + biscuited/splined; joints with the ply core sections		owner decision 11 (replaces Rev E F5 solid ledge)
F5N.C	Countertop nosing, center section	1	1 1/4 (5/4)	1 1/2	34 1/2	carries R5/8 thumbnail; flush with ply core at top; glued + biscuited/splined; joints with the ply core sections		owner decision 11 (replaces Rev E F5 solid ledge)
F5N.R	Countertop nosing, right section	1	1 1/4 (5/4)	1 1/2	70 1/4 (69 3/4 + 1/2 wall end)	carries R5/8 thumbnail; flush with ply core at top; glued + biscuited/splined; joints with the ply core sections		owner decision 11 (replaces Rev E F5 solid ledge)
X1	Plaster cornice	-	-	-	-	by plasterer		

C Hardware, screen drawer drive and controls (prices and links: Rev G (current)/Motorized-Screen-Drawer-Budget-RevG.xlsx)

ID	ITEM	QTY	NOTES	FLAG
H1	Butt hinges, loose pin (start 2 × 1⅝)	20	2 per door; slotted screws	PROV. size
H2	Turned knobs	10	1 per door	
H3	Surface catch	5	1 per pair	VERIFY type vs cupboard
H4	Elbow catch, passive leaf	5	1 per pair	
H5	Opening restraints, outer leaves (doors 1L and 5R)	2	stop at about 90° so the leaves can't strike the side walls	Rev F; select product
H6	#10 pan-head screws + ¾" OD washers, ½" ledge slots	≈ 22		

ID	ITEM	QTY	NOTES	FLAG
H7	Draw bolts, ledge joints	4	2 per joint	
H9	Wall / ceiling anchors	per design	per substrate	VERIFY substrate
M1	Screen, Elite VMAX Tab-Tension 3 VMAXT100XWH3	1	100" 16:9, motorized, 28.5 lb; floating brackets included	VERIFY on delivery
M2	Drawer slides, Accuride 9301E-10	1 pair	cheek member + carriage member	ask Accuride: 104" carriage
M3	Aluminum tube 2 × 4 × ⅛ 6061-T6 (spine)	1	103½ long, X 35¼–138¾	
M4	Steel gear racks, 20° PA, ~10" long	2	on the cheeks, Z 101–101⅜; pitch to match M5	
M5	Rack pinions, ~1" pitch dia., ¾" bore	2	keyed / set-screwed to the torque tube	
M6	Torque tube ¾" OD steel	1	≈105¼ (X 34⅜–139⅝)	
M7	Flange bearings, ¾" bore	3	2 on the end plates + 1 mid-span	
M8	12 V planetary gearmotor with encoder (goBILDA 5203 188:1 or Pololu 37D)	1	on the carriage, X 36.6–42.1	
M9	Timing belt + 1:1 pulley pair + motor mount	1 set	motor to torque tube	
M10	Limit switches (Omron V-15 roller lever)	2	open (at stop block) + closed (wall rail X 60); wire NC	
M11	Stop tabs, rubber-faced stop blocks, bumpers	2 + 2 + 2	open stop at 8"; closed bumpers on cheek fronts	
M12	ESP32 controller, Cytron MDD10A driver, Mean Well LRS-150-12 supply, enclosure	1 each	above the left bay, X 8–24	
M13	Cable carrier 10 × 15 mm + aluminum arm; ¼ ply tray	1	through the left-cheek slot	
M14	110 V duplex receptacle in the left-bay cavity	1	to code	VERIFY circuit
M15	12 V trigger interface (relay / opto) and screen-up reed switch	1 + 1	optional reed switch on the bar	

Generated from *CutList-Plywood-RevG.csv* and *CutList-Poplar-RevG.csv* (Rev G CNC Files, exported from the Rev G model; ezdxf re-read and model-size checks in *Checks-RevG.txt*). Plywood sizes assume 0.72" actual for ¾" nominal; re-run the export with the measured sheet (FV13). Acclimate all solid stock in the room, or in matching conditions, until moisture-meter readings are stable and within the range used for the panel and ledge allowances. Face-frame tenons are 1" and door tenons 1¼" throughout. Each table continues across printed pages with its header repeated.

10 Field verification and unresolved items

open items block fabrication of the parts listed

Keep adjustable in the 3D model. Until FV5, FV6, FV9 and FV12 close, these stay parameters, not fixed geometry: the screen case length, bracket height, fabric plane and drop (Model-Parameters.json), the frieze joint height, the cornice profile, the room-base projections, and the cupboard-derived door, bead and ledge profiles.

ID	ITEM TO MEASURE OR OBTAIN	AFFECTS SHEETS / PARTS	NOTE	STATUS
FV1	Opening width at floor, 36", 72", 110"	02, 05, 09: end stiles, ledge, frieze, room base	Wall plumb/out-of-square sets scribes; 174" nominal held	OPEN
FV2	Wall reference plane (most-proud point), flatness	01, 03, 05: hanging rails, upper wall rail, backs	Sets Y = 0 and shim depths	OPEN
FV3	Floor high point and profile across run	05: platform, backer, room base; all Z values	Platform top held at Z 7½; base board scribed to the floor	OPEN
FV4	Ceiling level and height Zc at several points	03, 03C, 08: top frame, cornice	Top frame and web heights	OPEN
FV5	Existing cornice: drop Dc, projection Pc, members, enrichment, condition	03C, 08: cornice, ground	Template before any cutting; cornice bottom assumed at 113"	OPEN
FV6	Room base: contour tracing of the 7½" profile and its projections; side-wall runs, door casings and outside corners near both ends	05, 07 P6: room base	Heights measured 2 Nov 2026; projections PROVISIONAL	OPEN
FV7	Wall and ceiling substrates, joist direction, services	05, 08: rails, cheeks, top frame, anchors	Anchor selection; no blind drilling	OPEN
FV8	Dryness of the masonry behind the backs	01, 05: backs	No backs against damp masonry	OPEN
FV9	Delivered screen (VMAXT100XWH3): case length incl. end caps, bracket positions and height, fabric plane, case-to-fabric-bottom drop, trigger voltage, weight	08, 08A: carriage, brackets, image height	Model values from Elite's dimension sheet; confirm before cutting the end plates and spine	OPEN
FV10	Representative books: largest intended depth and height per bay	02, 05S	Confirms 10½" usable depth in all bays	OPEN
FV11	110 V and low-voltage wiring in the wall behind the cabinet to the controls above the left bay (no tower chase); projector 12 V trigger output (Epson LS11000 not confirmed)	08A: outlet, controls	Electrician where required; else trigger from ESP32 / remote	OPEN
FV12	Cupboard profiles: contour tracings of door sticking, panel step, opening bead, ledge edge	06, 07: all PROV. profiles	Also inspect: stuck vs applied, catch type	OPEN
FV13	Actual thicknesses of selected ply, Baltic birch and lauan	all, CNC files	Re-run the CNC export with measured thickness	OPEN
FV14	Room moisture content range	06, 09: panels, ledge, frieze	Panel and ledge allowances	OPEN
FV15	Entry door swing and the 20" relationship	03A	Design relationship only	OPEN
FV16	Access route for the 108" drawer front, the 104" spine and 70" ledge sections; room base length (174" front run)	09	One-piece parts only if they can be brought in	OPEN
FV17	Hardware selections: hinge size (135° on cupboards 2–4), outer-leaf opening restraints, catch mechanism, finish	06	Door gaps confirmed after paint trial	OPEN
FV18	Paint system and sheen; color #57614F selected	01	Lauan sample for telegraphing	OPEN
FV19	Test bay (Rev G.2): notch clearances after paint, lift-tilt-out of a center shelf past the stile and divider face, then a 30-day sustained book load (center shelves near the deflection limit)	05S: shelves, strips, cleats	Functional check, not a multi-year sag rating	OPEN
FV20	Accuride 9301E rating for a ≈104"-wide carriage; stock rack/pinion pair and bore; motor torque check with the real drawer	08, 08A	Ask Accuride; bench-test the drive before installing the front	OPEN
FV21	Drawer commissioning: limit-switch positions, stall timeout, close interlock, cable-carrier run	08A	Run 20 open/close cycles with books in place	OPEN

A CHANGE LOG, REV E → REV G.2 (REV E ITEMS E1–E5 ARE IN THE REV E REPORT)

ITEM	CHANGE SINCE REV E	SHEETS
F1	Cupboard shelves are opening – 2" (28½, 30¼, 29½, 30¼, 28½) so they come out with the doors at 90°; ½" bearing per side; outer leaves get opening restraints (Rev F review).	05S, 06, 09
F2	Principal stile and divider tops held 1/16" below the drawer front (Z 100 7/16). Frieze keeper (T7) omitted (Rev F review).	02, 07, 09
F3	Center bays lined with ¼" painted pocket liners at Z 99¾–100; all upper standards 63 9/16" (Rev F/F.2).	03, 05S, 08, 09
F1.1	Cupboard 3 built like the others: solid bottom B3.3 (no vent slots), full top stretcher and top rail, no plinth intake or platform notches; 05D AV detail deleted (Rev F.1 and Rev G cleanup).	05, 09
F2.1	All five upper bays 12" deep: center shelves at Y 11½, front standards and 9 9/16" cleats as the side bays, dividers 1½ × 11 flush with the stiles (Rev F.2).	01, 03, 04, 05S, 09
F2.2	Screen drawer replaces the fixed carrier, caps, gussets, hangers, tie-backs and T8 blocks. The 108" lower frieze is the drawer front; the band joint moves from Z 106 to 107½ (upper frieze 5½", lower 7"; web from 108). VISIBLE change, owner-reviewed in the model.	02, 03, 04, 07 P5, 08, 08A, 09
G1	Room base: the room's 7½" base runs continuously across the cabinets and returns on both side walls, painted the cabinet color; the closed plinth and its bead are deleted. Cabinets, face frame and doors rise 3½" (carcass Z 7½–34¾, openings 10–32¾, doors 22⅝"). Ledge and everything above unchanged.	01, 02, 03, 04, 05, 05S, 06, 07 P6, 09
G2	Motorized drawer: Elite VMAXT100XWH3 (case 100.9", 28.5 lb); slide stack moved to the outer tower panels (cheeks X 33–33¾ / 140¼–141, end plates 34½–35¼, 103½ interior); 12 V gearmotor belted to the anti-rack torque tube; open/closed limit switches; cable carrier through the left cheek; controls and outlet above the left bay. Image ≈ Z 45.85–94.85.	08, 08A, 09, 10
G3	Paint color #57614F (owner).	01
G.2	Single partitions (owner-approved): one ¾ partition centered behind each 3" tower stile (X 34⅛–34⅞ / 139⅛–139⅞) under a ¾ tower cap (X 33–35⅝ / 138⅜–141, Z 99¾–100½) carrying the drawer cheek; end panels ¾ nearer the walls (X 1–1¾ / 172¼–173); center dividers a ¾ core + 2¼ painted face (X 68⅝–70⅞, 103⅛–105⅜). Every strip hidden: ⅜ inside the 3" tower-stile edges, flush with the end-stile and divider-face edges (set –0/+1/32 toward the panel); front strips run to the stile backs. Openings 30½ / 32⅝ / 32¼ / 32⅝ / 30½; shelf cores 32¼ / 34⅜ / 33⅝ / 34⅜ / 32¼, edging opening – ⅛. Removal: lift ½, tilt 24° about the edging end at the tower (bay 2 pivots left, bay 4 right), center, draw out (top-down). Hanging rails to X 1 / 173. Wiring in the wall (no tower chase).	01, 02, 03, 04, 05S, 08, 08A, 09, 10
G.1b	Center-bay liner front lips, painted poplar ¾ × 7/16 at Y 10½–11¼, Z 100–100 7/16 (flush with stile/divider tops, 1/16 under the drawer front), closing the ½" slot seen from below. Drawer-front finger-pull rebate deleted (motorized).	03, 08, 08A, 09
G.1	Traditional sawtooth fit (owner): ¾" standards in the four corners; straight ¾ × 1 cleats front-to-back with tongues in the seats (1/16 end play); shelves opening – ⅛, notched ¾ deep from the shelf end at all four corners (13/16 from the panel face, 1/16 clearance), 11/16 bearing; full-width edging 1/16 in front of the front standards; rear rail between the notches; keepers deleted. Shelves 30⅜ / 32⅞ upper, 30⅜ / 32⅛ / 31⅜ cupboards. Removal by tilting (24° upper; 23° outer cupboards at 90°, 21° middle at 135°), top shelf down.	01, 04, 05S, 06, 09, 10

B DIMENSION RECONCILIATION

CHECK	ARITHMETIC	RESULT	STATUS
Upper chain (G.2)	2½+30½+3+32⅝+2¼+32¼+2¼+32⅝+3+30½+2½	174	OK
Upper interiors (G.2)	end panel ¾ + 32⅜ + ¾ + 34½ + ¾ + 33¾ + ¾ + 34½ + ¾ + 32⅜ + ¾	172 (X 1–173)	OK
Lower chain	2½+30½+3+32¼+3+31½+3+32¼+3+30½+2½	174	OK
Base boxes + gaps	32+33¾+33+33¾+32 + 1¾×2 + 1½×4	174	OK
Vertical chain	7½ base + 27¼ + 1¼ + 64½ + 7 + 1/16 joint + 5½ + 1/16 quirk	113 1/16 frieze top; 113⅛ plaster ground (cornice VERIFY)	OK
Cupboard face	2½ rail + 22¾ opening + 2 rail	7½ → 34¾	OK
Standard fit, all upper bays	99¾ soffit/liner − 36⅛ start − 1/16	63 9/16	OK
Shelf widths (G.2)	upper core interior − ⅛, edging opening − ⅛; cupboards opening − ⅛	upper cores 32¼ / 34⅜ / 33⅝, edging 30⅜ / 32½ / 32⅛; cupboards 30⅜" / 32⅛" / 31⅜"	OK
Shelf bearing on cleat	¾ cleat − 1/16 clearance	11/16 each side	OK
Cleat lengths	rear seat Y 2 1/16 → front seat (sr + 7/16)	upper 7 9/16", cupboard 9 5/16"	OK
Shelf tilt-out (G.2)	lift ½, 24° about the tower-side edging end, centered	plan 0.37 / 0.46 / 0.61 each side; ceiling ≥ 0.23 (bay 4 must pivot right); cupboards as G.1	OK (sample)
Seat grid	46¼ 58¾ 71¼ 83¾ 18¾ ÷ 1¼	37, 47, 57, 67, 15	OK
Doors	(opening − 3/16)/2 × (22¾ − ⅛)	15 5/32, 16 1/32, 15 21/32 × 22⅝	OK
Waist ledge	69¾ + 34½ + 69¾	174 (+ scribe separately)	OK
Carriage interior vs case	(174 − 2 × 35¼) − 100.9	103½ − 100.9 = 2.6 (1.3 each end)	VERIFY case
Drawer fit in the frieze band	case 4.4 + bracket 0.4 + top plate ½ + gaps; bottom of stowed bar	case Z 101.75–106.15, bar ≥ 101, front 100½–107½	OK (model check)
Travel	stop 8 vs slide 10	2" slide reserve	OK
Screen clearance	15.03 open fabric − 12 book line	3.0	OK (VERIFY fabric plane)
Bar above ledge	101.75 − 57.9 − 0.75 vs 36	43.1 > 36	OK (VERIFY drop)
Drive speed	π × 1" pinion × 30 rpm / 60	1.57 in/s → 8" in ≈ 5 s	OK (estimate)
Deflection, long-term (G.2 spans)	Rev E results × (span ratio)⁴	side ≈ 0.039 / 0.053; widest center ≈ 0.051 / 0.056; widest cupboard ≈ 0.045 / 0.052	OK (estimate)
Ledge movement at slots	10.4 × 0.00289 × 4%	≈ 0.12 vs 0.31 travel	OK (assumed MC)
3D model	Rev G.2 build checks (evaluated geometry, 0.0002" tolerance)	89 pass, 0 fail	OK (sampled checks)

Rendered check: the PDF delivered with this revision was itself rasterized page by page and inspected for clipping, overlapping labels, missing fractions and table overflow, and the issues found were fixed before release. Sources: Rev F review (Review-and-Changes.md) and the Rev F, F.1 and F.2 drawing-coordination deltas; Rev G.2 model check 89/89; Elite VMAXT100XWH3 dimension sheet and user guide; Accuride 9301E data. S1 Eastlake, *Hints on Household Taste*; S2/S4 Denning, *The Art and Craft of Cabinet-Making* (1891); S3 Met Museum, Kimbel & Cabus desk; S5 Sawtooth Shelf System; S6 Lee Valley 00S0710 (reference only, not used); S7 NPS Preservation Brief 23; S8 USDA Wood Handbook ch. 4 (moisture) and ch. 5 (creep); S9 House of Antique Hardware.