PA-001 Rear-load rolling lane for sealed food cans

Keep the earlier sealed cans at the accessible end while new cans are loaded behind them, without moving home-canning jars.

Original bounded component build. Dimensions describe this example, not an approved structural, occupied-building or universal fit design.

US inches/feet control; metric figures are references. No physical build, load certification or animal trial performed.

Before cutting

Read the whole assembly and inspect its receiving space before cutting. Measure actual sheet thickness; nominal lumber labels do not control these joints.

Set aside straight, clean stock and allow it to acclimate. Keep fingers clear of blades, clamp work and use tool-appropriate eye/hearing protection.

Dry-fit moving pieces before final fastening; stop if a proposed dimensional substitution changes clearances. Purchased hardware dimensions and hole patterns below must match the actual item.

Materials and actual cuts

Part	Qty	Actual size	Material and special cut
A Base	1	6 1/2 x 25 1/2 x 1/2 in 165.10 x 647.70 x 12.70 mm	W: untreated sound wood/plywood. Square ends; remove all splinters and burrs.
B Side wall	2	25 1/2 x 6 x 1/2 in 647.70 x 152.40 x 12.70 mm	W: untreated sound wood/plywood. Square ends; remove all splinters and burrs.
C Ramp support	2	24 x 2 x 1/2 in 609.60 x 50.80 x 12.70 mm	W: untreated sound wood/plywood. One retained triangular support from each 24 x 2 in blank; top rises 2 in over 24 in horizontal run.
D Cold-contact ramp liner	1	5 1/2 x 24 1/8 x 1/4 in 139.70 x 612.77 x 6.35 mm	Supplier-declared food-contact HDPE sheet, cold use only; no antimicrobial or certification claim for the finished build Square ends; remove all splinters and burrs.
E Front stop	1	5 1/2 x 2 x 1/2 in 139.70 x 50.80 x 12.70 mm	W: untreated sound wood/plywood. Square ends; remove all splinters and burrs.
F Rear stop	1	5 1/2 x 2 x 1/2 in 139.70 x 50.80 x 12.70 mm	W: untreated sound wood/plywood. Square ends; remove all splinters and burrs.

Hardware and tools

8 x #8 x 1 1/4 in wood screw. A into side walls

6 x #8 x 3/4 in wood screw. B into C

8 x #8 x 1 in wood screw. Side walls into front/rear stops

Tape, square, pencil; clamped saw setup appropriate to the material; drill/driver and depth stop; countersink for wood fasteners; files/sanding block; clamps. Specific additional tools are noted in the steps.

Measured assembly reference

Coordinates refer to the illustrated pose: x left/right, y front/rear, z up. Positions are inches from the front-left underside datum. A negative position projects beyond that datum. The size vector gives the part orientation before any stated rotation; it is not a substitute for its cut profile.

Part / instance	Origin x, y, z	Size dx, dy, dz / rotation
A / 1	0, 0, 0 in 0.00, 0.00, 0.00 mm	6 1/2 x 25 1/2 x 1/2 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg
B / 1	0, 0, 1/2 in 0.00, 0.00, 12.70 mm	1/2 x 25 1/2 x 6 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg
B / 2	6, 0, 1/2 in 152.40, 0.00, 12.70 mm	1/2 x 25 1/2 x 6 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg
C / 1	1/2, 5/8, 1/2 in 12.70, 15.88, 12.70 mm	1/2 x 24 x 2 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg
C / 2	5 1/2, 5/8, 1/2 in 139.70, 15.88, 12.70 mm	1/2 x 24 x 2 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg
D / 1	1/2, 5/8, 1/2 in 12.70, 15.88, 12.70 mm	5 1/2 x 24 1/8 x 1/4 in Rotation x/y/z: 4.7636, 0.0000, 0.0000 deg
E / 1	1/2, 0, 1/2 in 12.70, 0.00, 12.70 mm	5 1/2 x 1/2 x 2 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg
F / 1	1/2, 25, 2 1/2 in 12.70, 635.00, 63.50 mm	5 1/2 x 1/2 x 2 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg

Numbered assembly

01. Use only intact cylindrical commercial cans that match the example: no more than 3 in diameter and 4 1/2 in axial length. This lane is not for glass jars, dented cans or hot goods.

02. Cut A 6 1/2 x 25 1/2 x 1/2 in; B two 25 1/2 x 6 x 1/2 in; E/F each 5 1/2 x 2 x 1/2 in. Cut two C 24 x 2 x 1/2 in blanks.

03. Mark C from zero height at its front to 2 in at its rear over 24 in. Cut on the discard side of that line so each retained wedge has the full marked top slope.

04. Stand B on A at x 0-1/2 in and 6-6 1/2 in. Pilot four holes per side from under A at y 1,8,17,24 in; use #8 x 1 1/4 in screws into the side bottoms.

05. Position C inside the walls at x 1/2-1 in and 5 1/2-6 in,y 5/8-24 5/8 in. Their zero-height ends face the front; clamp both slopes alike.

06. Fasten C through adjacent B with three #8 x 3/4 in screws each at(y,z)=(8,3/4),(16,1 1/8),(23,1 1/2)in. Every point stays inside the 1/2 in wedge thickness.

07. Cut D 5 1/2 x 24 1/8 x 1/4 in from specified HDPE and place loose on C, starting y 5/8 in,z 1/2 in. Support angle is 4.7636 degrees; theoretical rear projection beyond C is about 0.042 in. Confirm the actual dry fit.

08. Install E at y 0-1/2 in,z 1/2-2 1/2 in between B. Use two #8 x 1 in screws through each B into E ends at z 1 and 2 in, centered on its 1/2 in thickness.

09. Install F at y 25-25 1/2 in,z 2 1/2-4 1/2 in using four #8 x 1 in screws at z 3 and 4 in on the same end-centerline method. Cans load from above at the rear.

10. Remove D and verify it has no trapped swarf, then reinstall. Test one empty undamaged matching can first, controlling it by hand so it cannot strike the front stop hard.

11. Test a second matching sealed can at the rear while holding the front one. Confirm it rolls gently, stays side-on and can be lifted over E without scraping its seam.

12. Use only on a low stable shelf with open top access. Add cans at the rear, remove at the front and inspect each can; stop if any can jams, falls or is dented. No storage capacity is certified.

Acceptance and intermediate checks

Wedges are both 2 in rise over 24 in run, with their zero ends at the front.

Clear lane width is 5 1/2 in; D lifts out without catching screws.

A matching empty-can test reaches the raised stop gently, without falling.

Sealed cans can be lifted out without seam damage; no glass or hot-container use.

Use and maintenance

Not a shelf-life extension method, seismic restraint or powered dispenser.

Reject bulging, leaking, rusty or badly dented containers according to food-safety guidance; the rack cannot establish food safety.

Inspect before each use for loose fasteners, cracked stock, damaged liners and a change in fit. Stop if a moving part binds or any sharp edge is exposed. Remove debris before washing. Keep birds and food away during cleaning; follow the actual material/product cleaning instructions and dry completely before reuse. Recheck screw seating after humidity changes. Replace damaged parts rather than hiding cracks with coating. No pressure, load, impact, disease-control or preservation performance is certified.

Primary context references

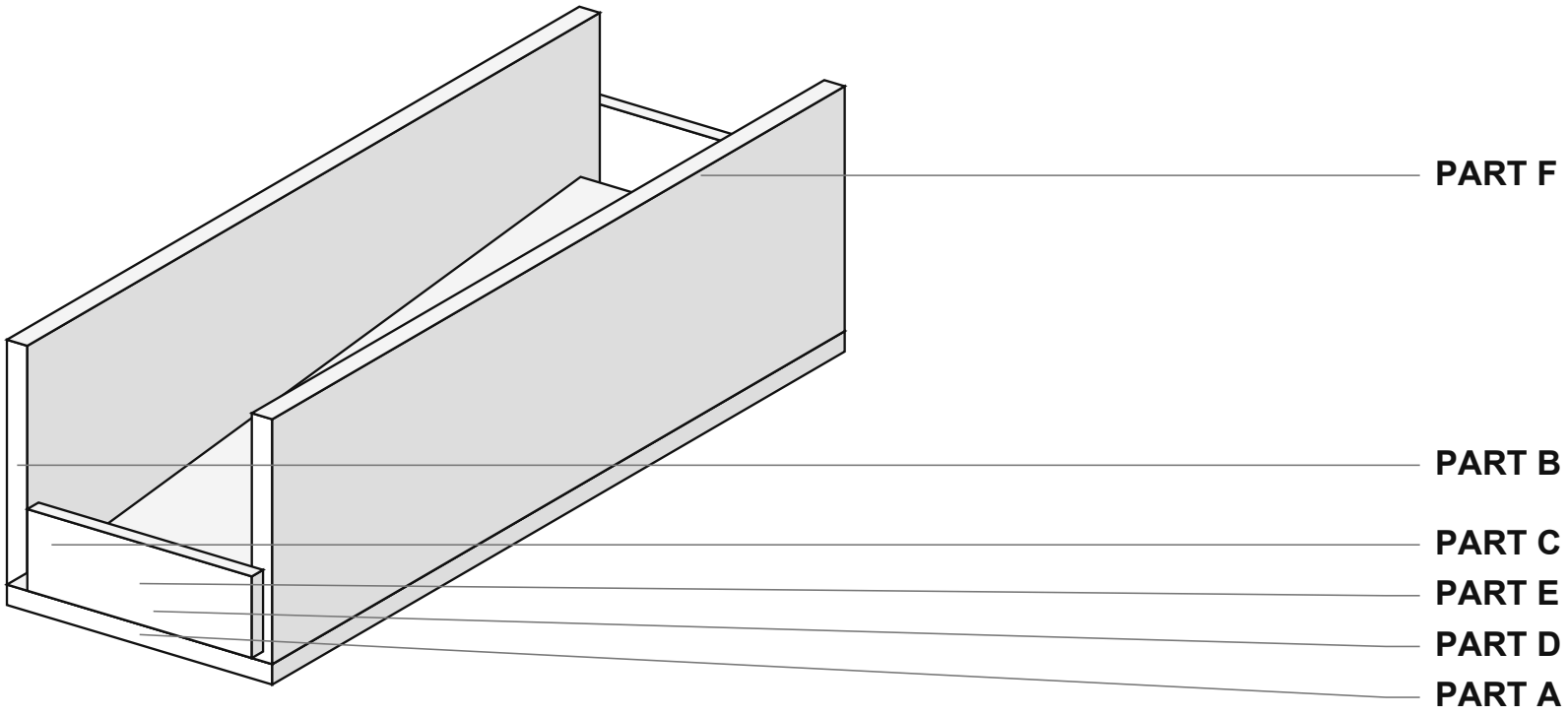
S4: Purdue University Extension, Wood drying: FNR-37. https://extension.purdue.edu/extmedia/FNR/FNR-37.html

S5: Utah State University Extension, Food Storage in Home.
https://extension.usu.edu/preserve-the-harvest/research/food-storage-in-home

S6: King Plastic Corporation, Food Service sheet materials. https://www.kingplastic.com/industries/food-service/

PA-001 | ASSEMBLY AND ORIENTATION

x = left/right; y = front/rear; z = height. Match part letters to the cut list.



Displayed envelope (width x depth x height):

6 1/2 in x 25 1/2 in x 6 1/2 in

Metric: 165.1 x 647.7 x 165.1 mm

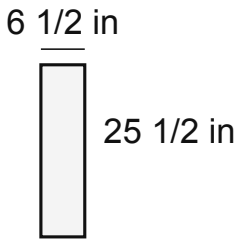
Locate joints and hardware using the numbered steps; view is not a full-size pattern.

Original B/W vector drawing - dimensions control - unbuilt / untested

PA-001 | PART SIZES 1 OF 1

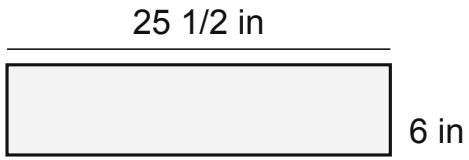
Actual dimensions; labels identify any stock blanks. Allow for saw kerfs between pieces.

A Base x1



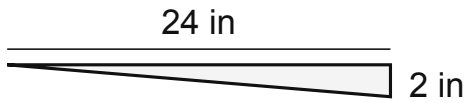
Face: 165.1 x 647.7 mm
Thickness: 1/2 in / 12.70 mm
Special cuts: see cut list and steps.

B Side wall x2



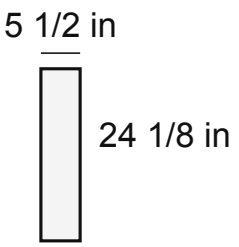
Face: 647.7 x 152.4 mm
Thickness: 1/2 in / 12.70 mm
Special cuts: see cut list and steps.

C Ramp support x2



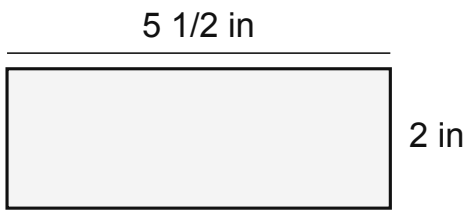
Face: 609.6 x 50.8 mm
Thickness: 1/2 in / 12.70 mm
Special cuts: see cut list and steps.

D Cold-contact ramp liner x1



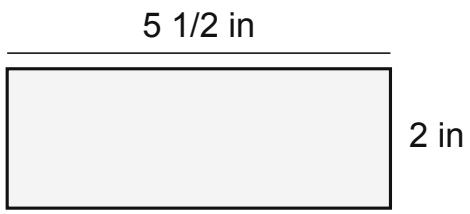
Face: 139.7 x 612.8 mm
Thickness: 1/4 in / 6.35 mm
Special cuts: see cut list and steps.

E Front stop x1



Face: 139.7 x 50.8 mm
Thickness: 1/2 in / 12.70 mm
Special cuts: see cut list and steps.

F Rear stop x1

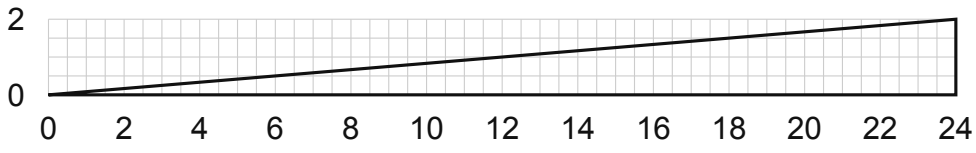


Face: 139.7 x 50.8 mm
Thickness: 1/2 in / 12.70 mm
Special cuts: see cut list and steps.

Original B/W vector drawing - dimensions control - unbuilt / untested

PA-001 | RETAINED PROFILE - PART C

Half-inch grid; numbered axes are inches. Transfer using dimensions, not print scale.



Ramp support

Plane: yz

Horizontal extent: 24 in

Vertical extent: 2 in

609.60 x 50.80 mm

One retained triangular support from each 24 x 2 in blank; top rises 2 in over 24 in horizontal run.

Original B/W vector drawing - dimensions control - unbuilt / untested