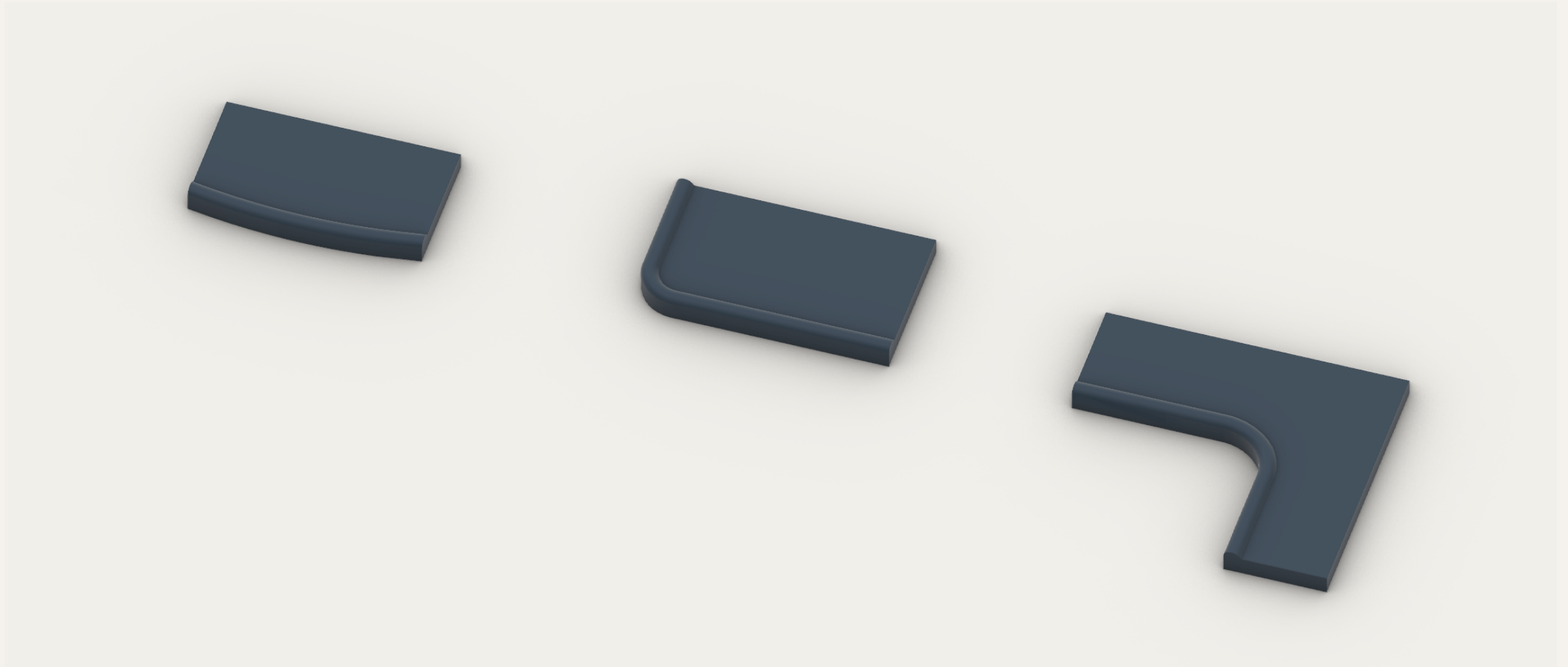


CushionCAD by John Bland

Independent demonstration: 3D cushions, developed panels and fabric nests

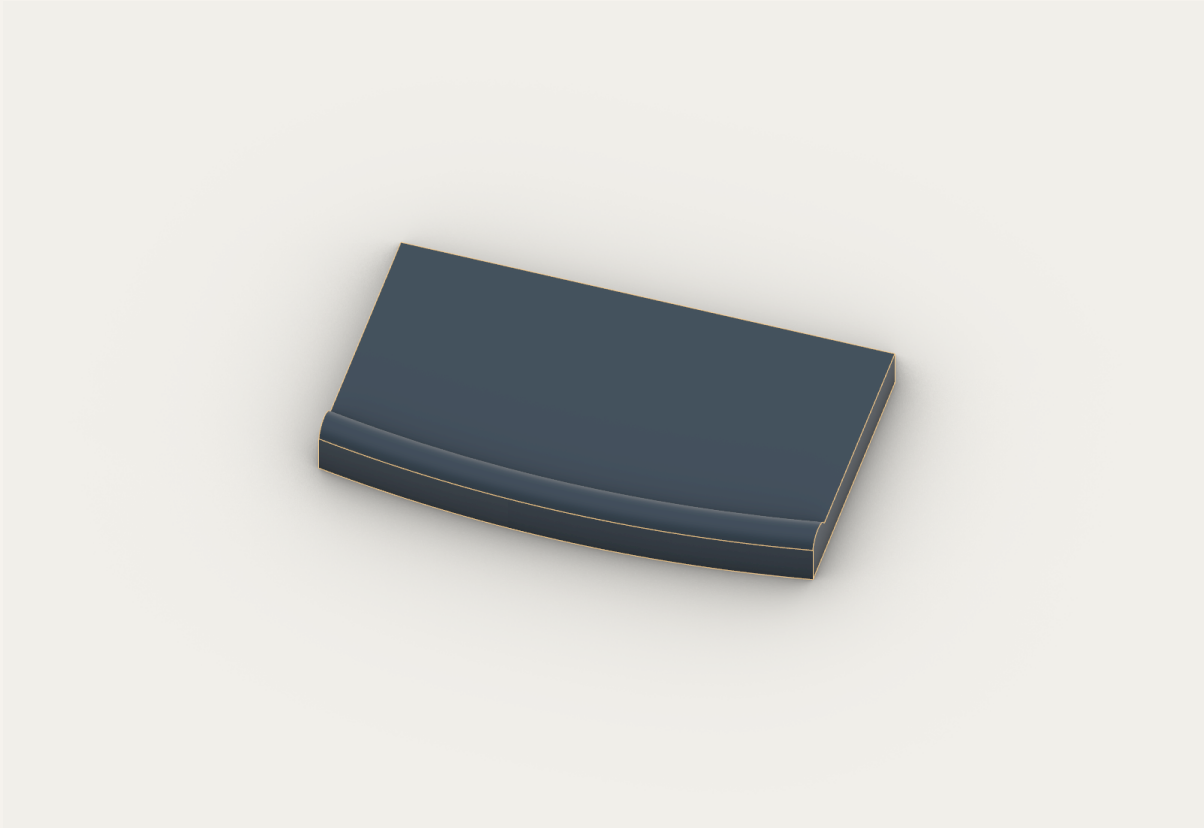


Three independent 3D examples share one knee-roll profile and a 4-inch (101.6 mm) body. The wave bench A and internal return C are developed and nested here. External return B remains a 3D preview.

Development review only. These are CAD material previews and actual calculated panel outputs, not manufactured products or approved cutting patterns.

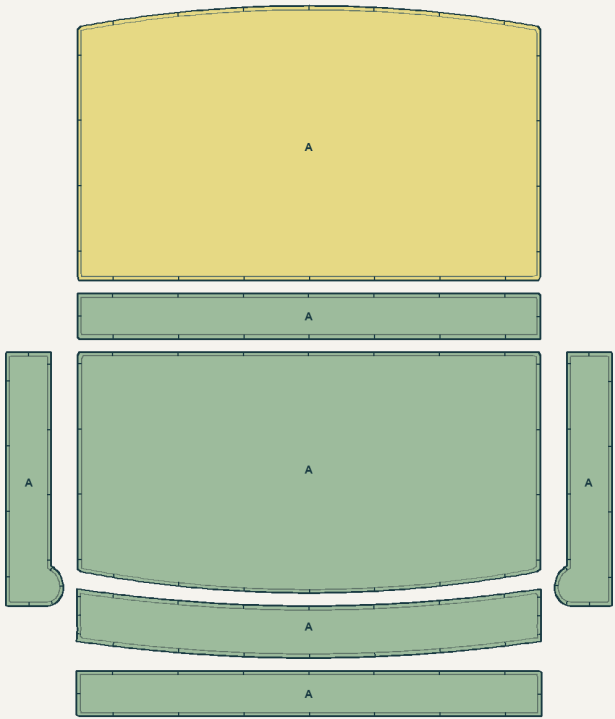
Example A - Wave bench

7 panels | 15 paired seams | 122 match marks | 0 corner mitres



Example A - developed panels

Cut and stitch outlines, carried match marks and panel letters | Fabric face UP



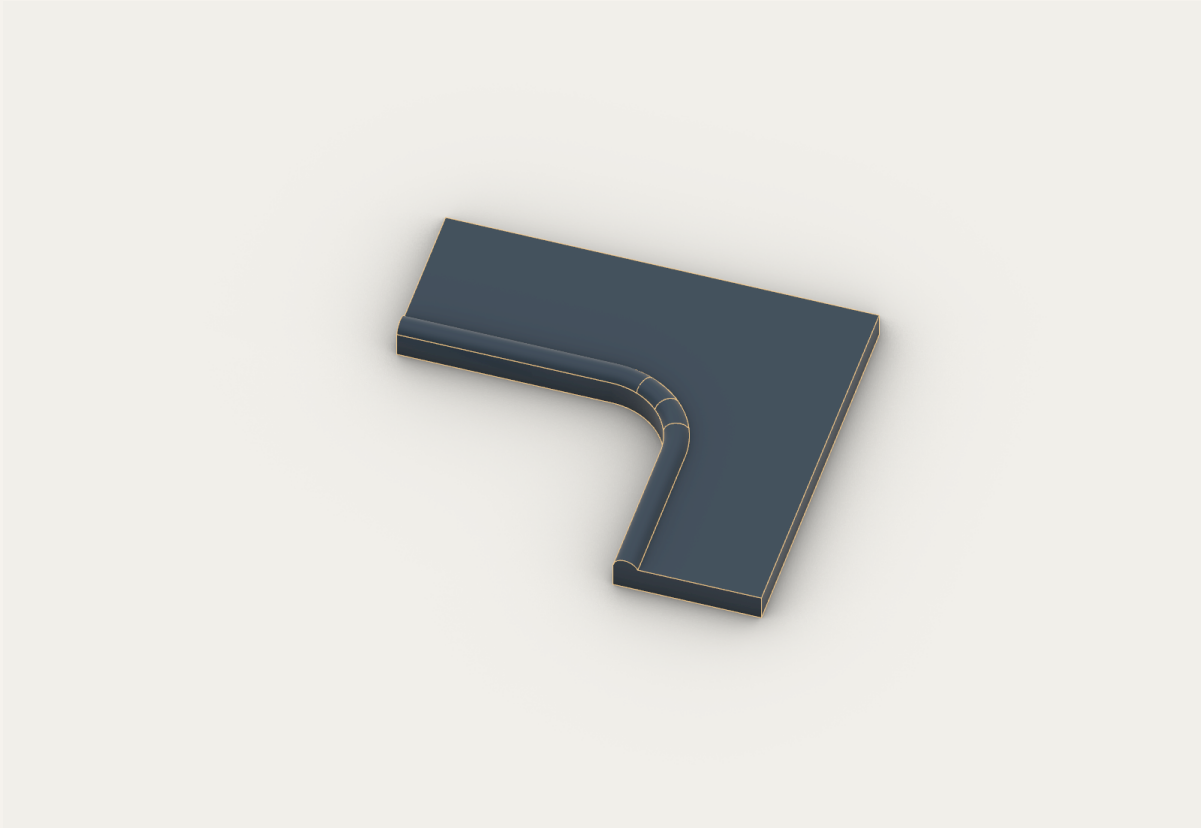
CushionCAD by John Bland | Independent CAD output | Design review

Measured local assembly demand: peak stretch 0.36%; excess material 0.37%. Largest panel P95 demand 0.33%. Maximum recorded edge difference 0.744 mm.

Rigid / deformation-free Squish is used where needed. Fabric cannot be assumed to compress. Actual material and grain direction must be assessed before cutting.

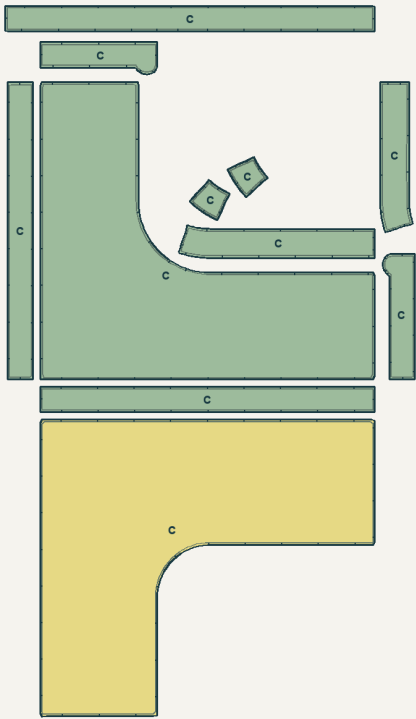
Example C - Internal return

11 panels | 27 paired seams | 190 match marks | 3 corner mitres



Example C - developed panels

Cut and stitch outlines, carried match marks and panel letters | Fabric face UP



CushionCAD by John Bland | Independent CAD output | Design review

Measured local assembly demand: peak stretch 5.12%; excess material 3.53%. Largest panel P95 demand 2.20%. Maximum recorded edge difference 0.550 mm.

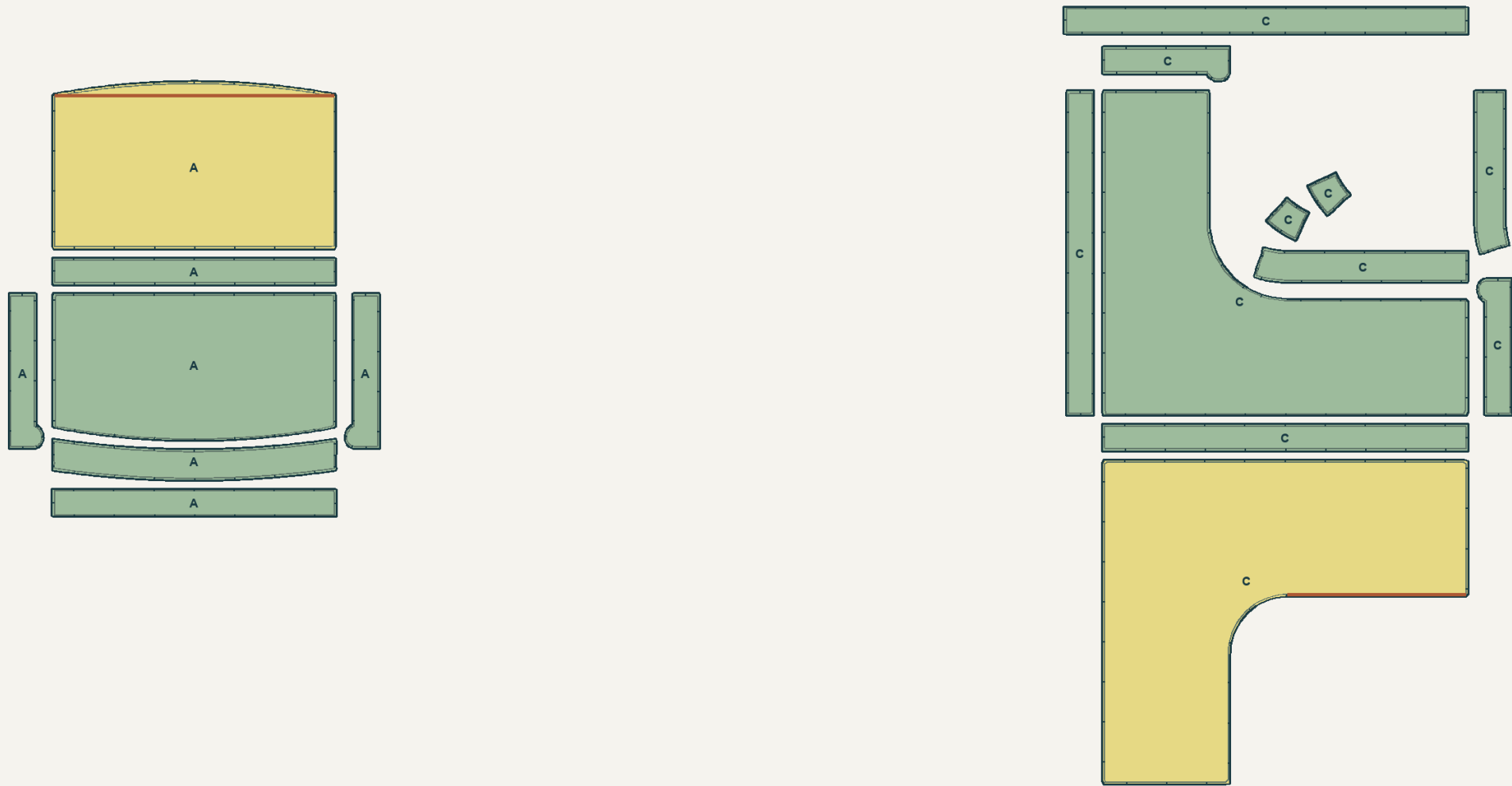
Rigid / deformation-free Squish is used where needed. Fabric cannot be assumed to compress. Actual material and grain direction must be assessed before cutting.

Development layout A

Fabric face UP. Layout orientation and fabric cutting face are separate choices.

Layout A - source-correlated panels

18 developed panels | 10 mm seam allowance | Fabric face UP | Yellow bases, green upholstery



CushionCAD by John Bland | Independent CAD output | Design review

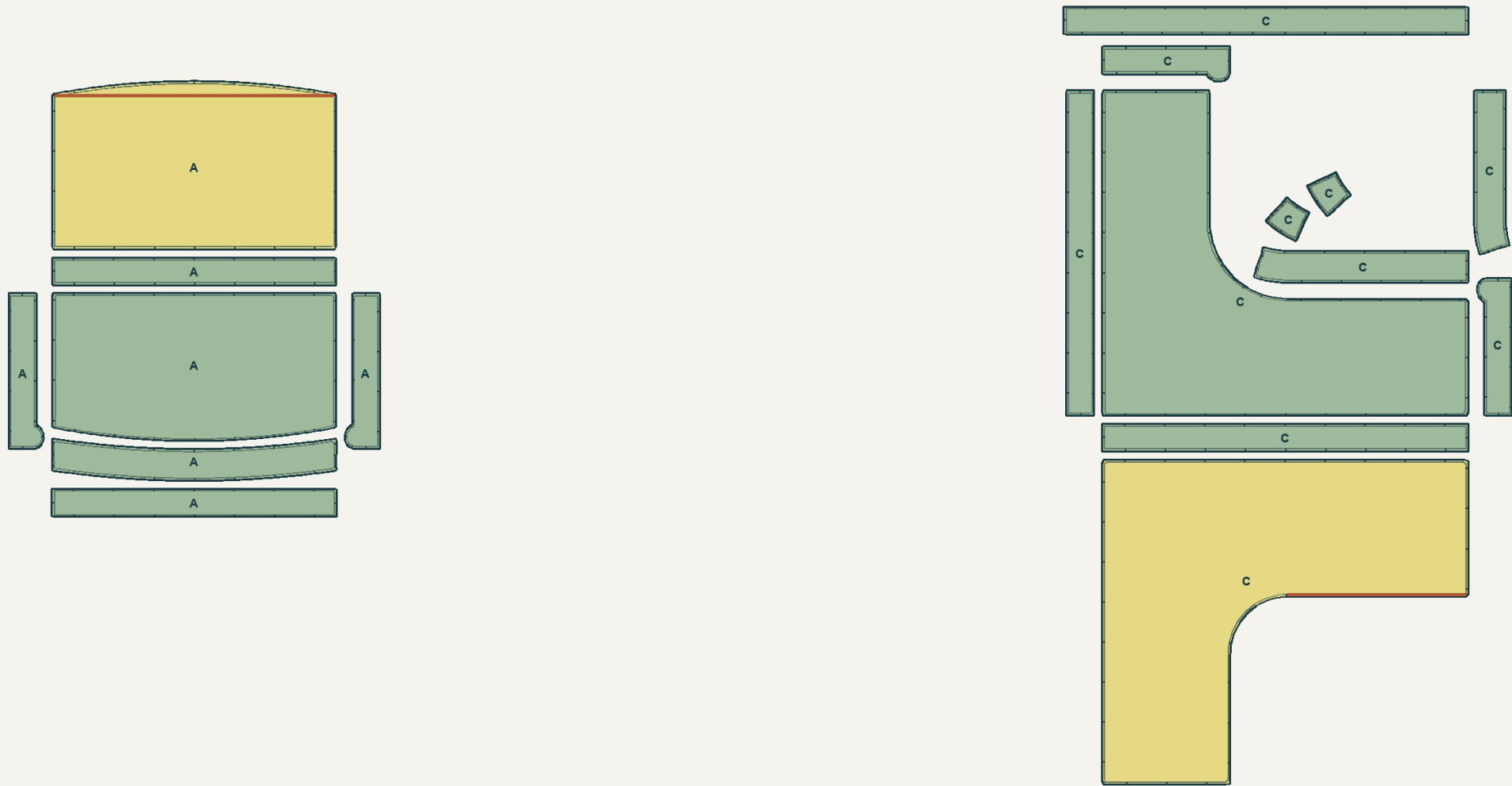
The red-brown reference is the carried base-front chord. For wrapping rolls, it follows the main front run up to the return radius. Each complete set rotates together; side and rear borders lie alongside their actual top seams.

Development layout B

Fabric face UP. Layout orientation and fabric cutting face are separate choices.

Layout B - main front chords along X

18 developed panels | 10 mm seam allowance | Fabric face UP | Yellow bases, green upholstery



CushionCAD by John Bland | Independent CAD output | Design review

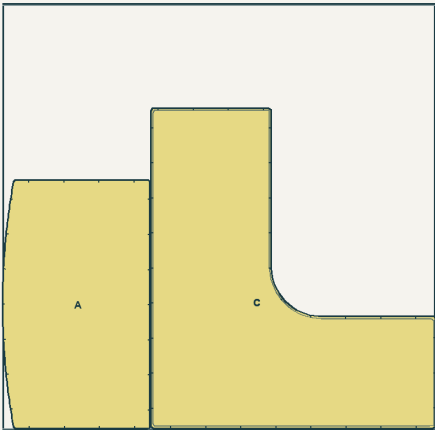
The red-brown reference is the carried base-front chord. For wrapping rolls, it follows the main front run up to the return radius. Each complete set rotates together; side and rear borders lie alongside their actual top seams.

Option A Nested

Cushion-grouped trial from layout A | Fabric face UP | Top direction locked; bases rotate independently

Option A Nested - BASE

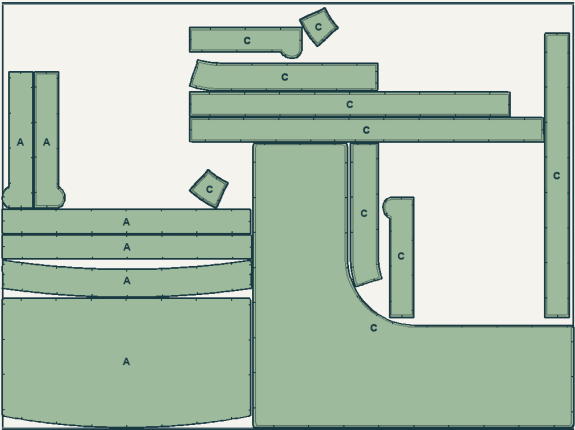
84 in fabric | 10 mm selvages | 5 mm gap | Individual base rotations | Used 2.161 m



CushionCAD by John Bland | Independent CAD output | Design review

Option A Nested - TOP

84 in fabric | 10 mm selvages | 5 mm gap | Top direction locked | Used 2.852 m



CushionCAD by John Bland | Independent CAD output | Design review

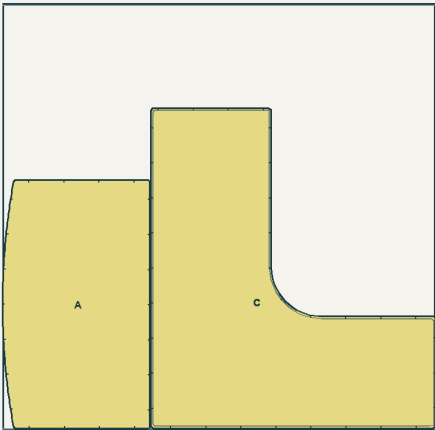
Top: 2.852 m. Bases: 2.161 m. Each stock is 84 in / 2133.6 mm wide, with 10 mm excluded at both selvages and a 5 mm inter-panel gap.

Option B Nested

Cushion-grouped trial from layout B | Fabric face UP | Top direction locked; bases rotate independently

Option B Nested - BASE

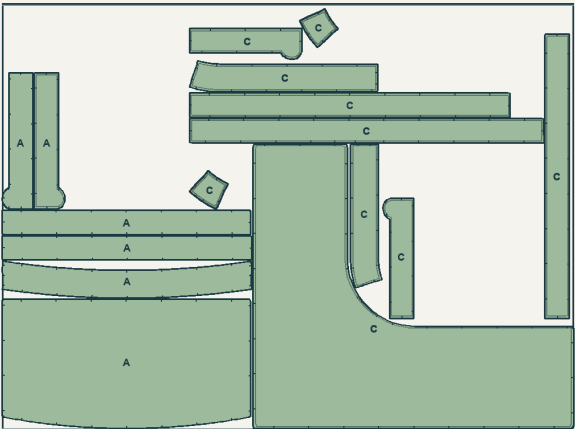
84 in fabric | 10 mm selvages | 5 mm gap | Individual base rotations | Used 2.161 m



CushionCAD by John Bland | Independent CAD output | Design review

Option B Nested - TOP

84 in fabric | 10 mm selvages | 5 mm gap | Top direction locked | Used 2.852 m



CushionCAD by John Bland | Independent CAD output | Design review

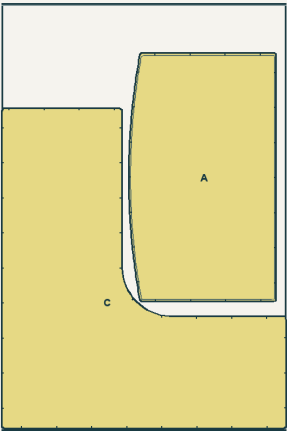
Top: 2.852 m. Bases: 2.161 m. Each stock is 84 in / 2133.6 mm wide, with 10 mm excluded at both selvages and a 5 mm inter-panel gap.

Option C Nested

Mixed-part trial from layout A | Fabric face UP | Top direction locked; bases rotate independently

Option C Nested - BASE

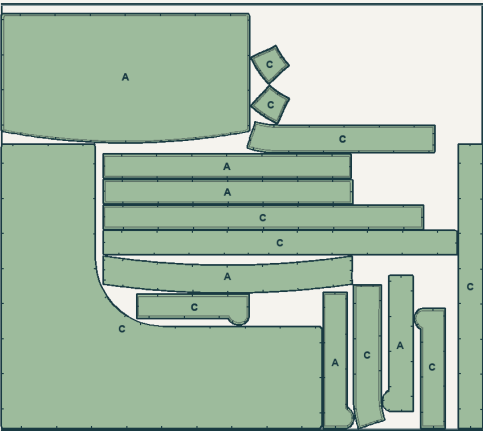
84 in fabric | 10 mm selvages | 5 mm gap | Individual base rotations | Used 1.420 m



CushionCAD by John Bland | Independent CAD output | Design review

Option C Nested - TOP

84 in fabric | 10 mm selvages | 5 mm gap | Top direction locked | Used 2.403 m



CushionCAD by John Bland | Independent CAD output | Design review

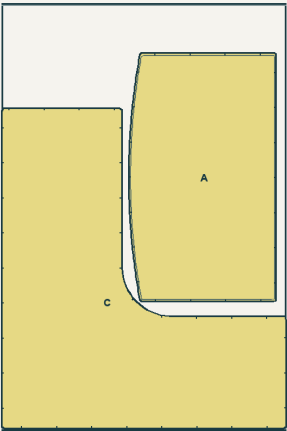
Top: 2.403 m. Bases: 1.420 m. Each stock is 84 in / 2133.6 mm wide, with 10 mm excluded at both selvages and a 5 mm inter-panel gap.

Option D Nested

Mixed-part trial from layout B | Fabric face UP | Top direction locked; bases rotate independently

Option D Nested - BASE

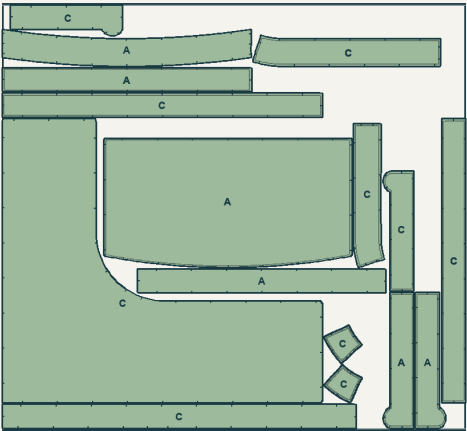
84 in fabric | 10 mm selvages | 5 mm gap | Individual base rotations | Used 1.420 m



CushionCAD by John Bland | Independent CAD output | Design review

Option D Nested - TOP

84 in fabric | 10 mm selvages | 5 mm gap | Top direction locked | Used 2.316 m



CushionCAD by John Bland | Independent CAD output | Design review

Top: 2.316 m. Bases: 1.420 m. Each stock is 84 in / 2133.6 mm wide, with 10 mm excluded at both selvages and a 5 mm inter-panel gap.

What has been demonstrated

Verified on these examples

Three valid closed fitted bodies. Two examples developed: A and C, with 18 panels, 42 paired seams and 312 match marks. Complete source and X-aligned sets reopened in the saved Rhino file. Native curve checks passed the shown width and pairwise spacing gates for four nesting alternatives.

A real width decision

The initial 60-inch trial held oversize panels. The illustrated 84-inch trial is an explicit demonstration input, not a change to the normal default. Source files retain both receipts. No automatic splits. Base panels use the selected independent free-angle mode; top fabric direction remains locked.

Read the material demands

Peak local demands and edge differences are reported on each example page. P95 does not erase local peaks. The external-return example B is 3D-only in this package: its horizontal-border trial had a 7.758 mm edge discrepancy and the alternate combined-front allowance produced a thin spike. Neither development is shown as accepted output. Passing a layout or nest does not approve the fabric or cutting dimensions.

Compare, rather than assume

Grouped and mixed packing are both shown for comparison. Read the measured stock lengths on each nest page; neither mode guarantees the shortest possible nest. These bounded searches are valid alternatives, not proven optima.

Independent source only

All models were newly authored from analytic curves and one new shared roll section. No earlier customer-derived images, reports, video frames or geometry are included. Example access-division guides remain inputs; they have not been applied to this demonstration.