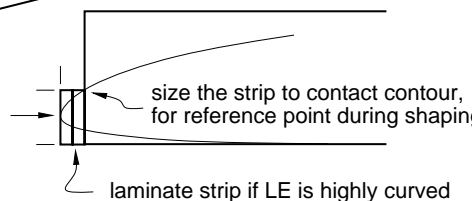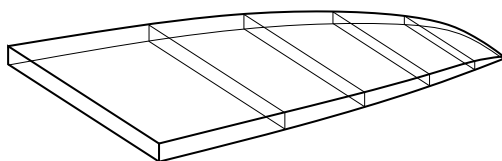# Accurate Shaping of Solid Balsa Surfaces Without Templates

Use Ambroid to splice soft balsa sheets.
Other glues will leave a ridge in the sanded surface.

Taper blank to correct local planform and thickness first.

Use basswood leading edge strips with correct local
percent chord dimensions to help shaping (taper as necessary).
LE strip also gives ding resistance, essential with very light balsa.
Attach with Titebond, which is sandable next to the basswood.

size the strip to contact contour,
for reference point during shaping

laminate strip if LE is highly curved

Strive for high accuracy in these initial steps, as errors will propagate.

Choose tangent planes and locate endpoint x/c or y/c locations on large airfoil plot.
Razor–plane and sand airfoil "polygon", as described below.
Then sand off slight remaining corners using shallow lighting.
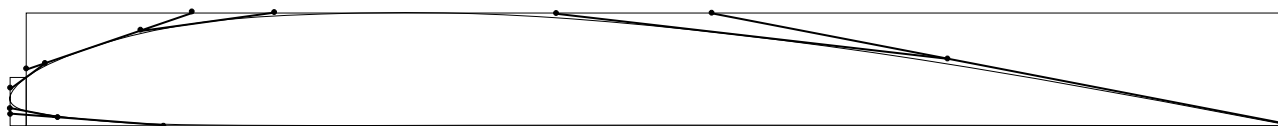
Mark LE point and plane endpoints on basswood strip
with a sharp pencil against a caliper, or against a slender
hardwood wedge with a thickness scale (easier and faster).
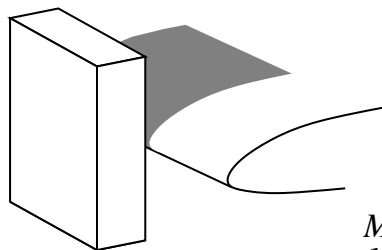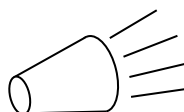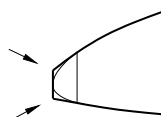Accurate marking is especially important here.
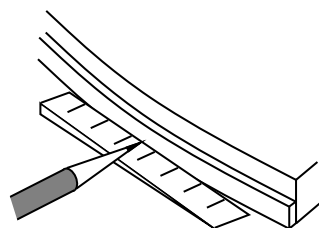
Sand the shallow planes, with masking tape guarding endpoints.
Edge of sanding board guards TE.

tape
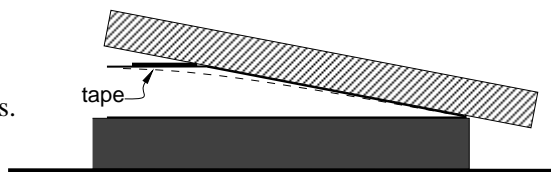
For steeper planes, hold block against edge of table,
and just clear of sanding board edge. Position board
on table to match the slope of the plane to be sanded.
This is easier than trying to hit both endpoints.
Endpoint marks on LE serve as a check.

no sandpaper
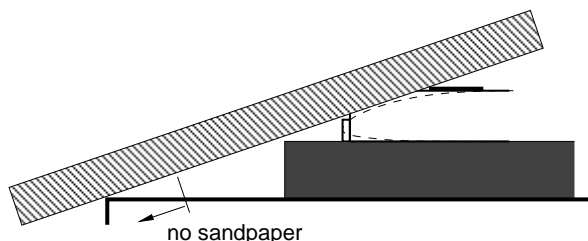
I sand off the tiny corners above and below the LE freehand.
LE shape can be seen during sanding using a compact lamp,
via shadow cast by edge of sanding block.

Mark Drela
10 Sept 99