

Frame with Raised Panel and Mitered Sticking

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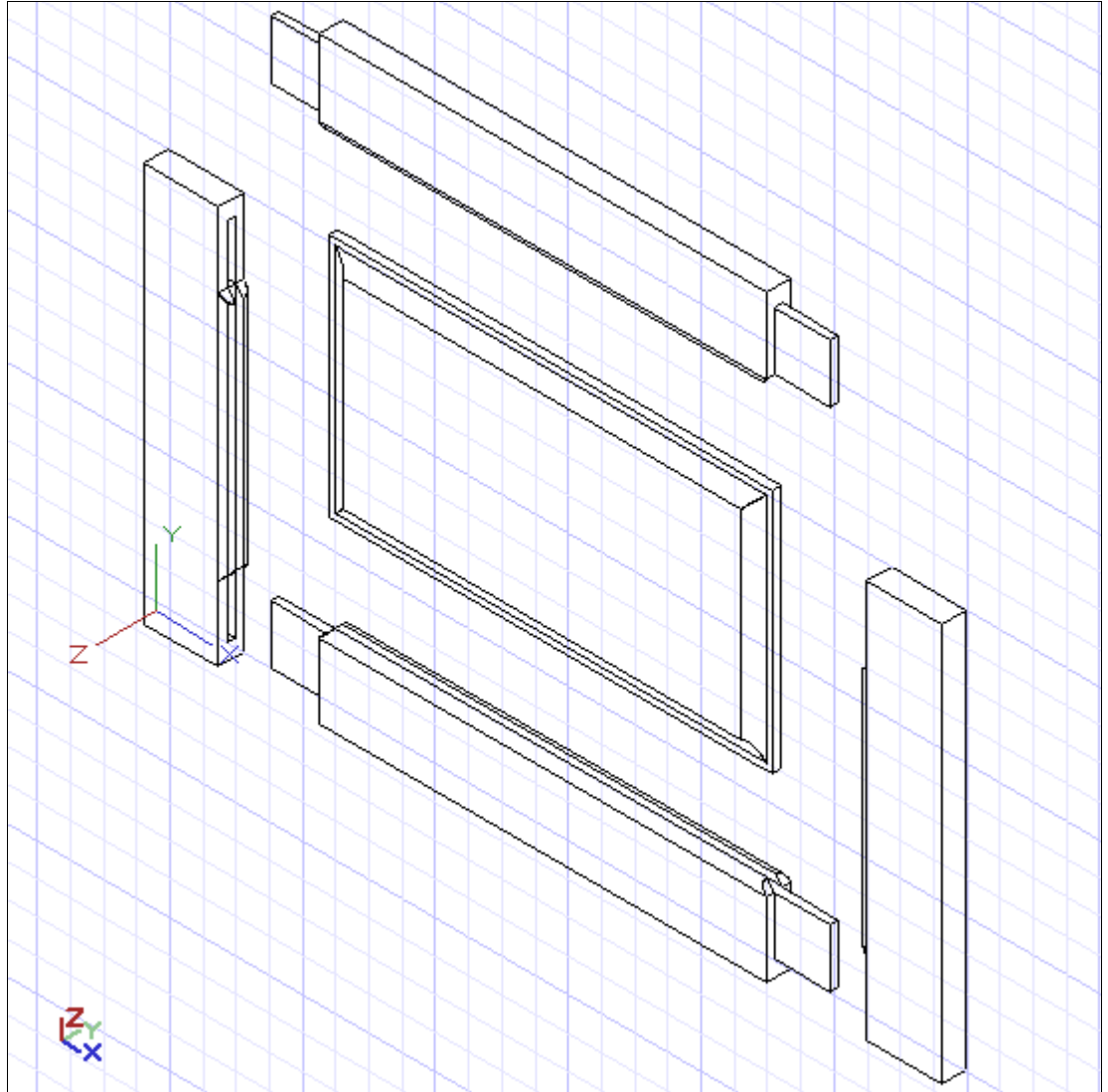
The following tutorial assumes that the reader has the 2D proficiency necessary to draw closed profiles and is familiar with these 3D tools: 3D Box, Normal Extrude, 3D Intersect, Imprint, and Facet Editor. An understanding of the Mirror Copy tool is also needed.

Downloads:

1. [Panel.pdf](#) - A printable version of this tutorial.
2. [Panel.tcw](#) - The v9 TurboCAD drawing I used to generate this tutorial. It contains the final results and the required layers and named workplanes. For reference, there is also a profile layer containing all of the 2D objects I used to generate the solids. To use the drawing to start your own, just turn off the profile and results layers.

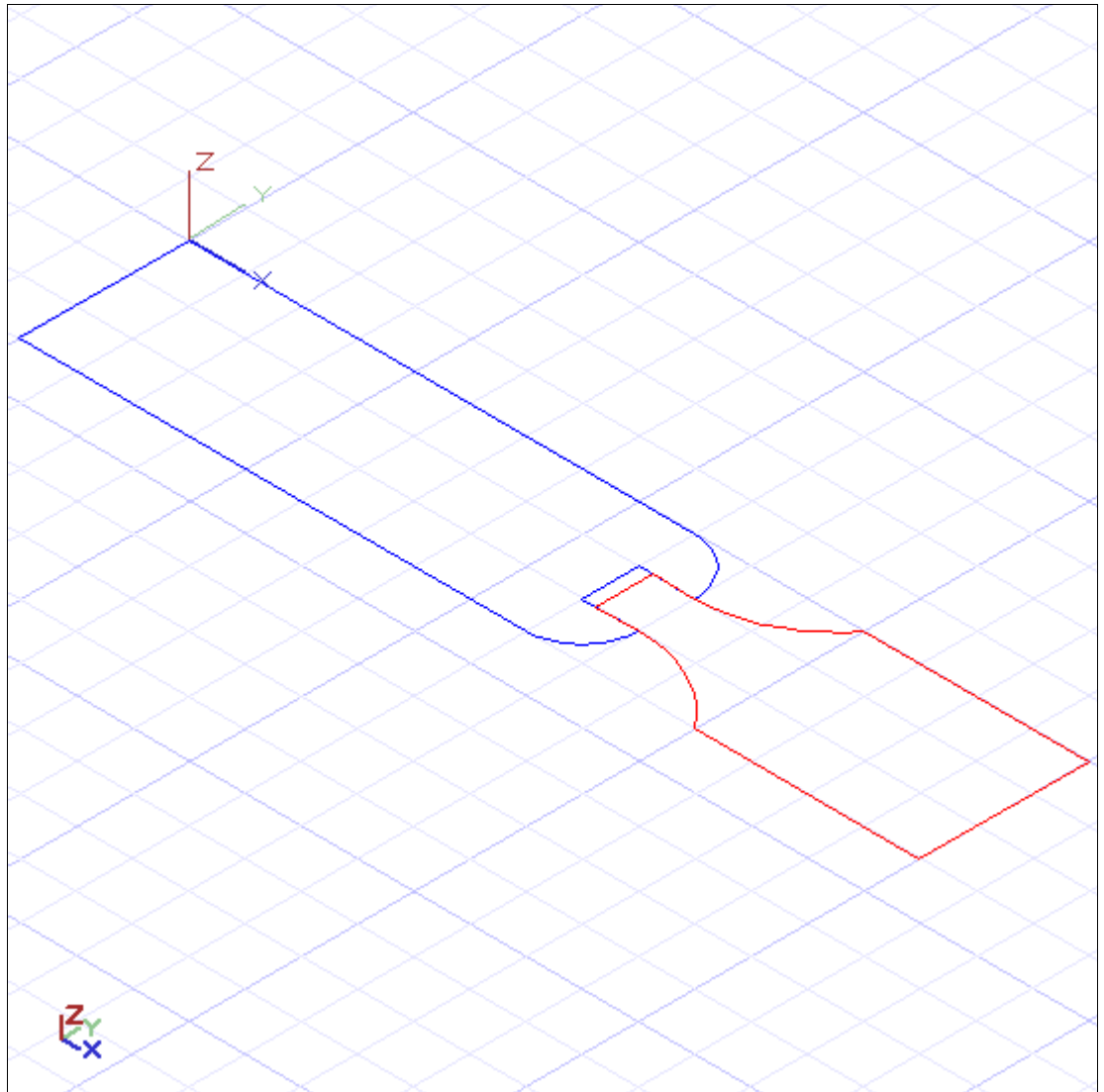
Tutorial:

1.
Here is an exploded view of the tutorial's end result.

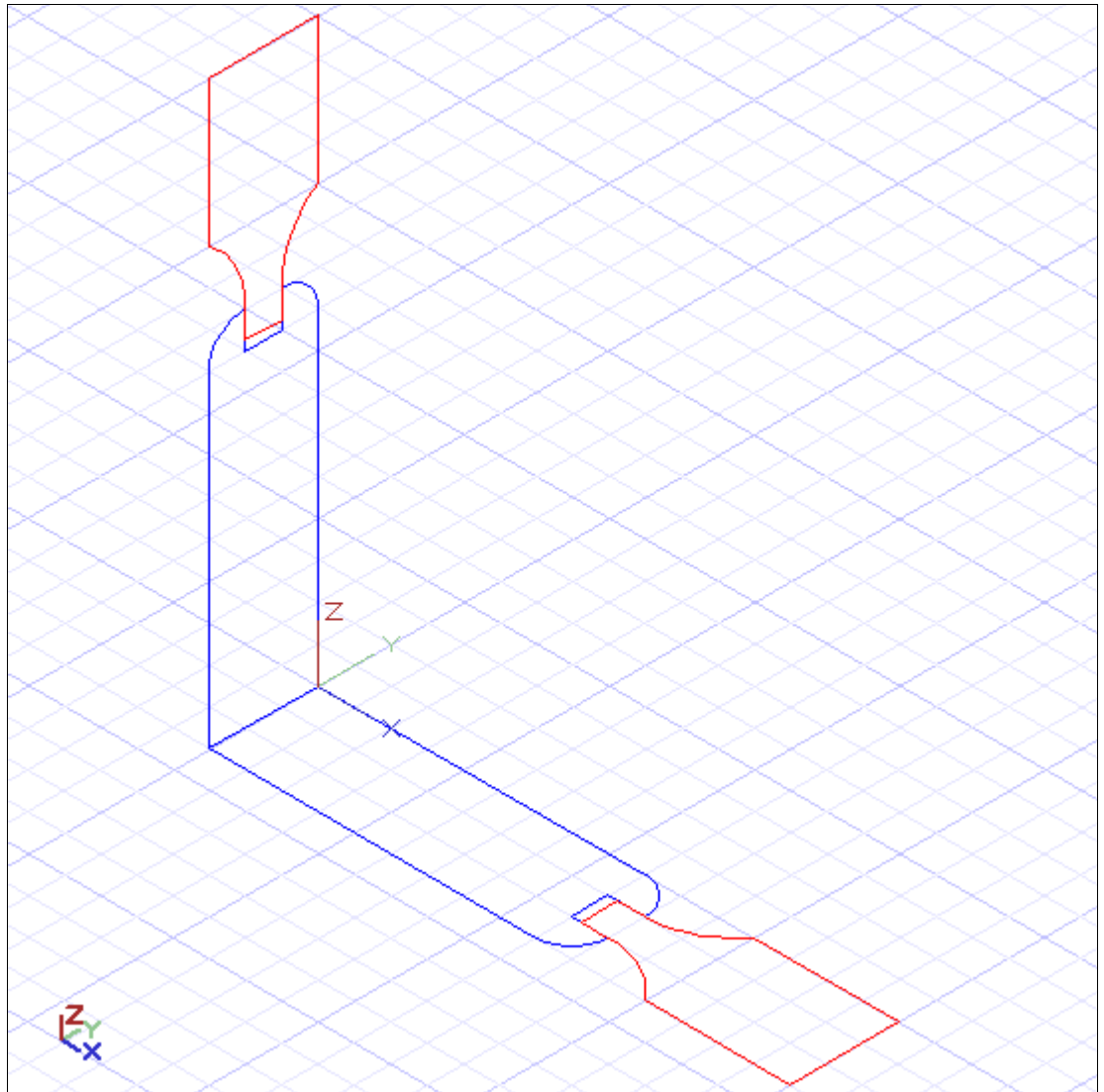


2.
At the origin, start with two profiles on the construction layer:
one that describes a top view of the stile (blue profile) and another that describes the top view of the left edge of the raised panel (red profile).

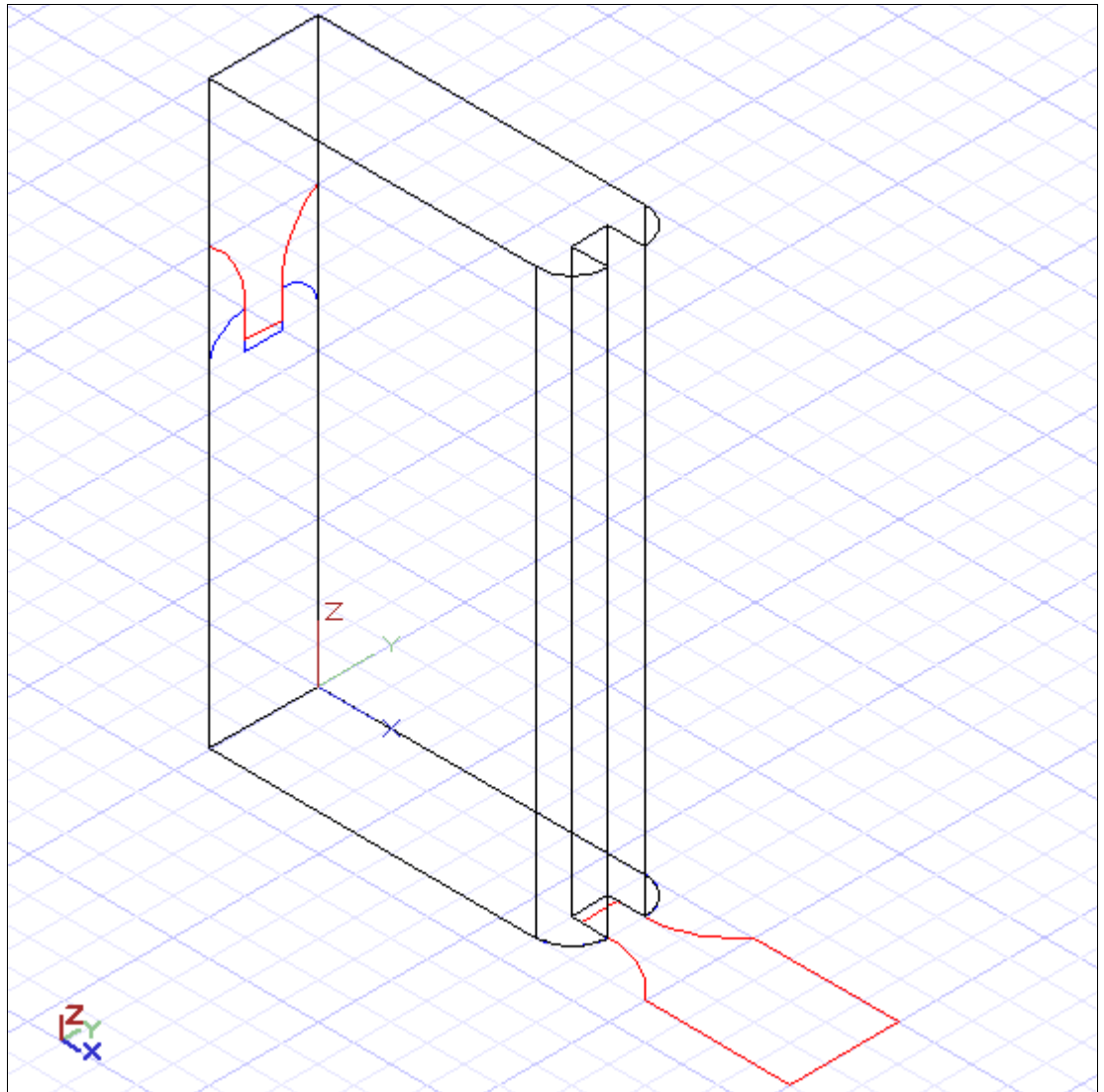
Feel free to modify the profiles to suit your needs.



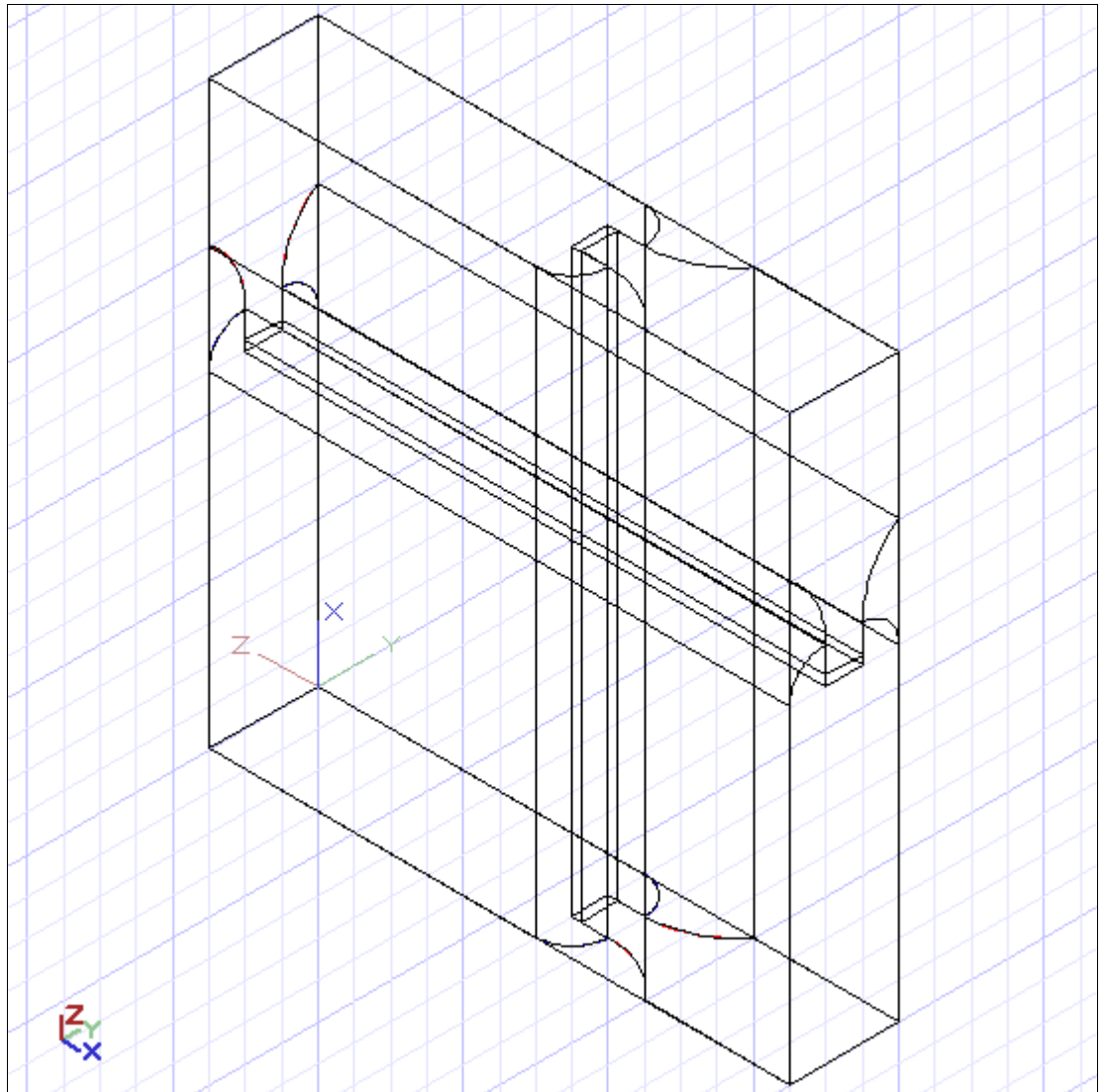
3.
Position a copy of
the profiles
rotated 270°
about world Y as
shown.



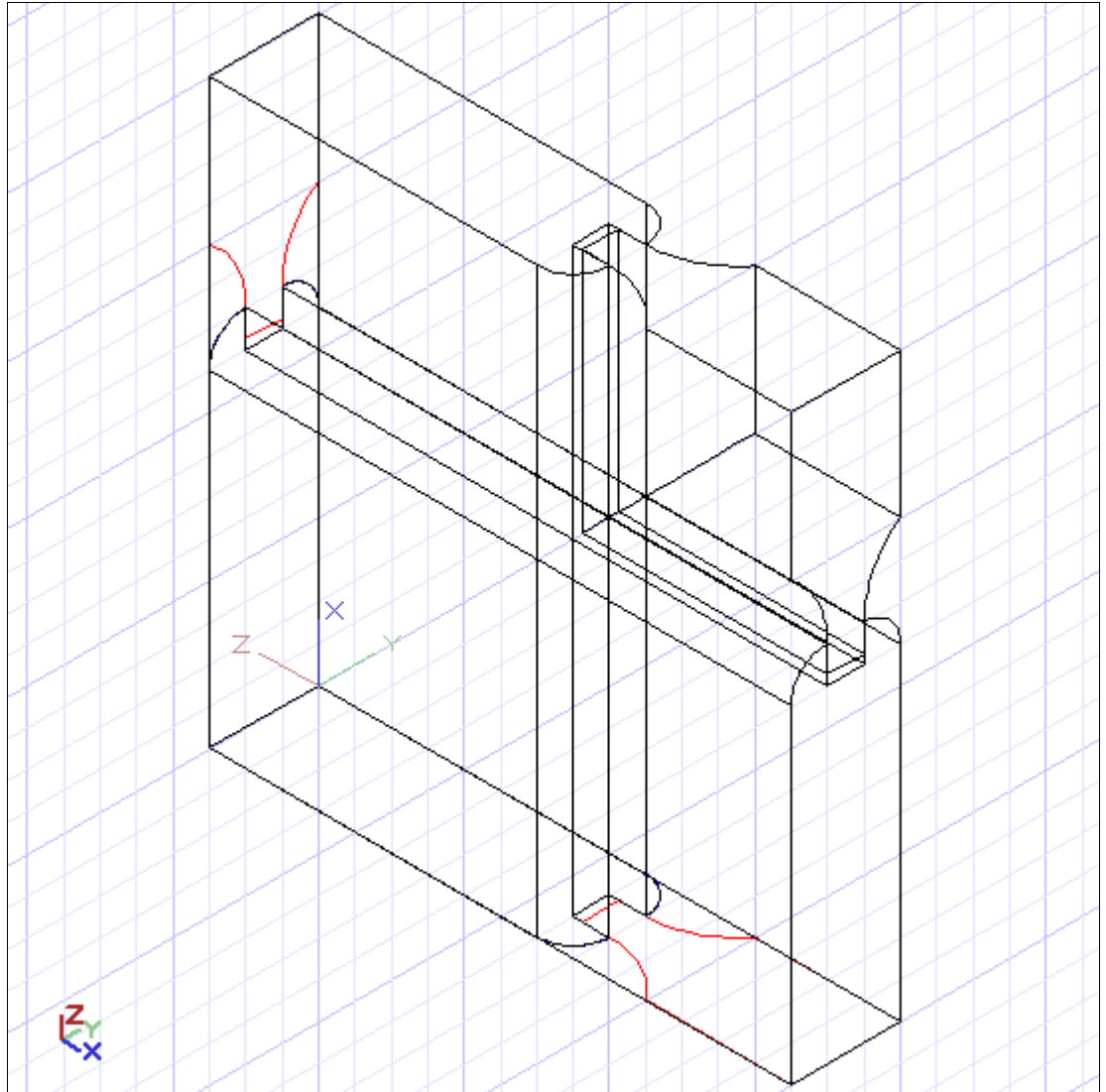
4.
On the 3D layer,
snap a stile
extrusion as
shown.



5.
Do the same for
the remaining
profiles.

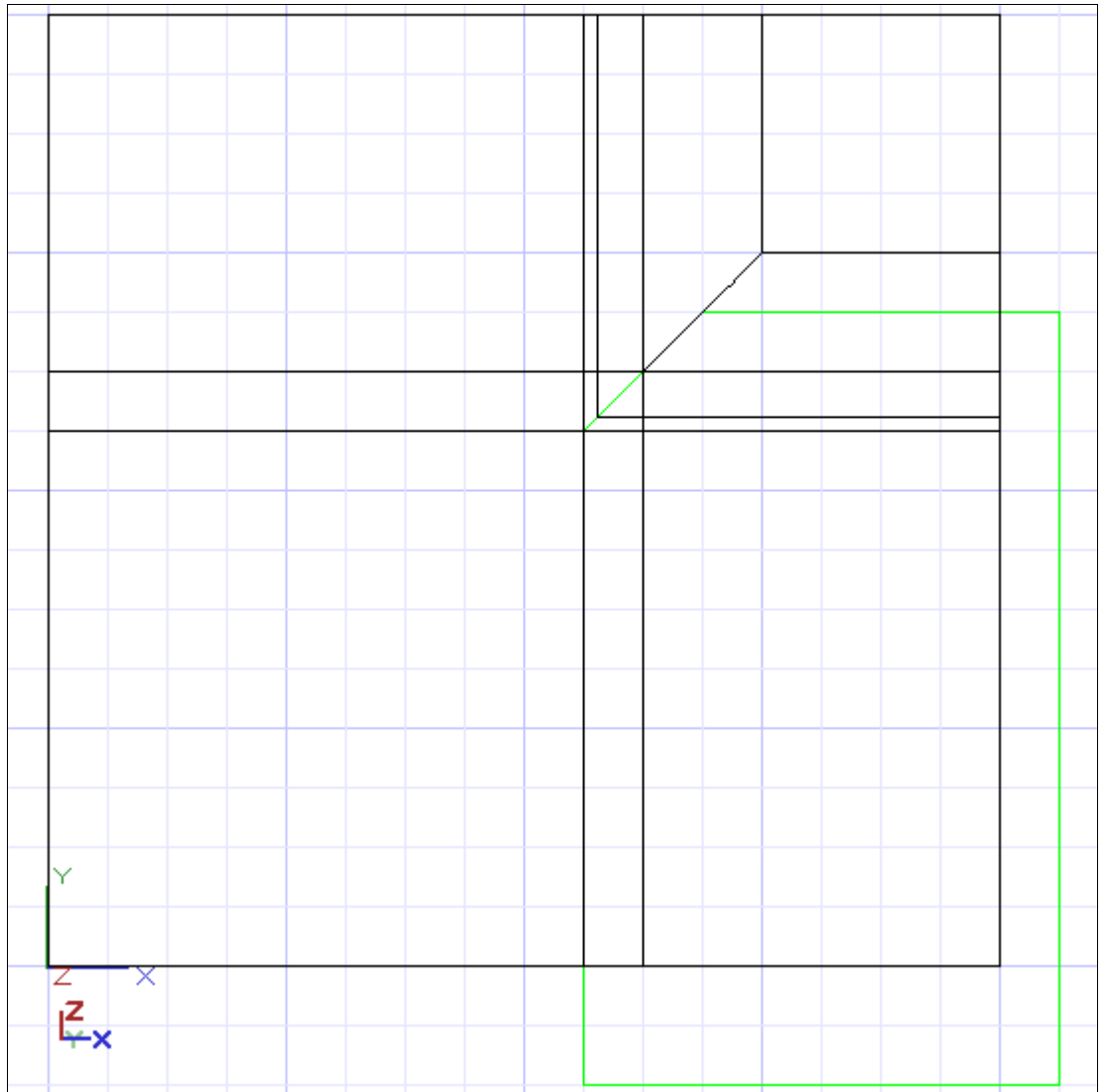


6.
Intersect the two
panel extrusions
to form a panel-
corner.



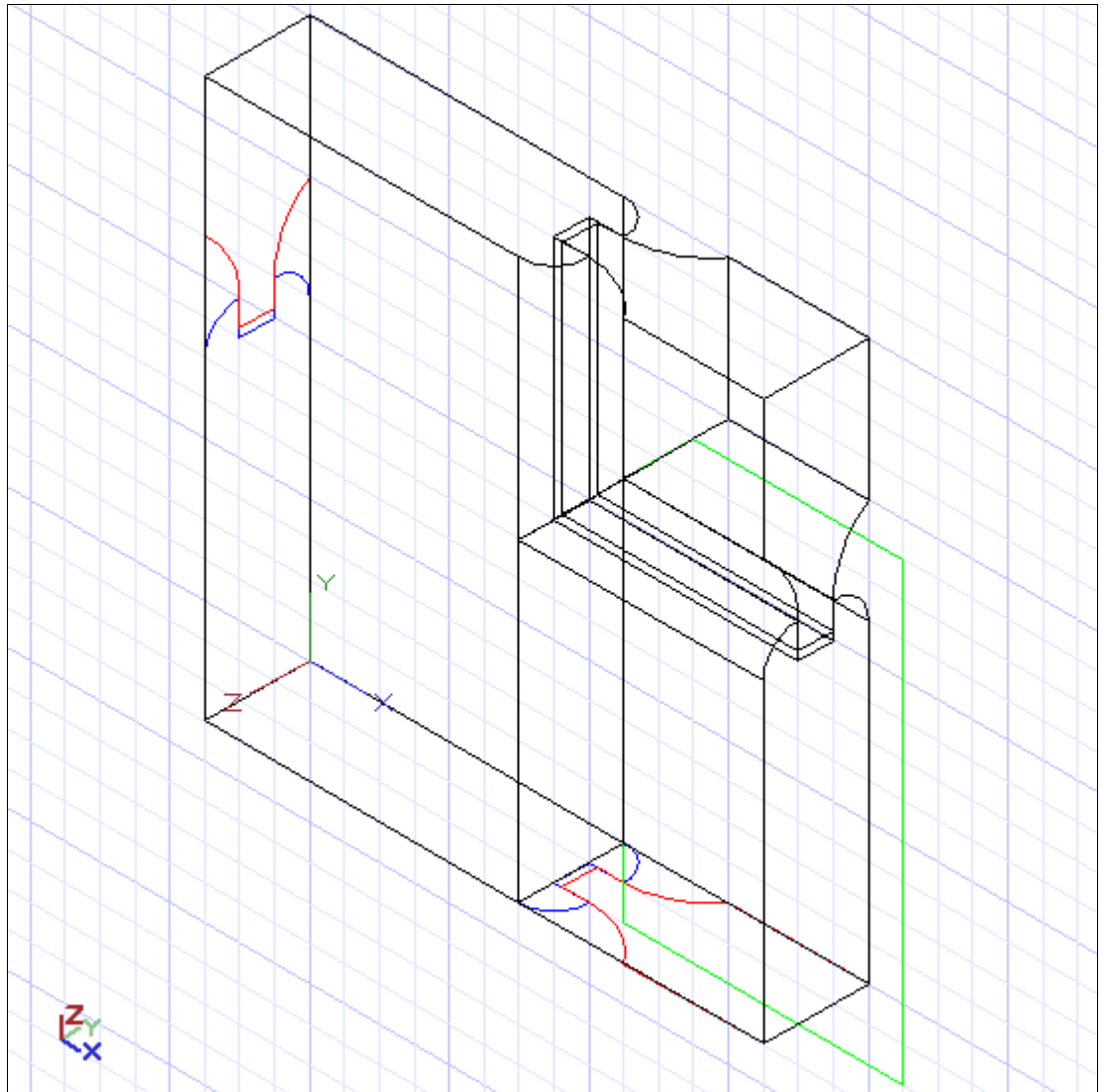
7.
Using the front view, snap the green profile on the construction layer.

This profile describes the final rail-stile joint line. Because the profile encloses the right end of the rail, it can be used to modify the shape of the stile and rail extrusions.



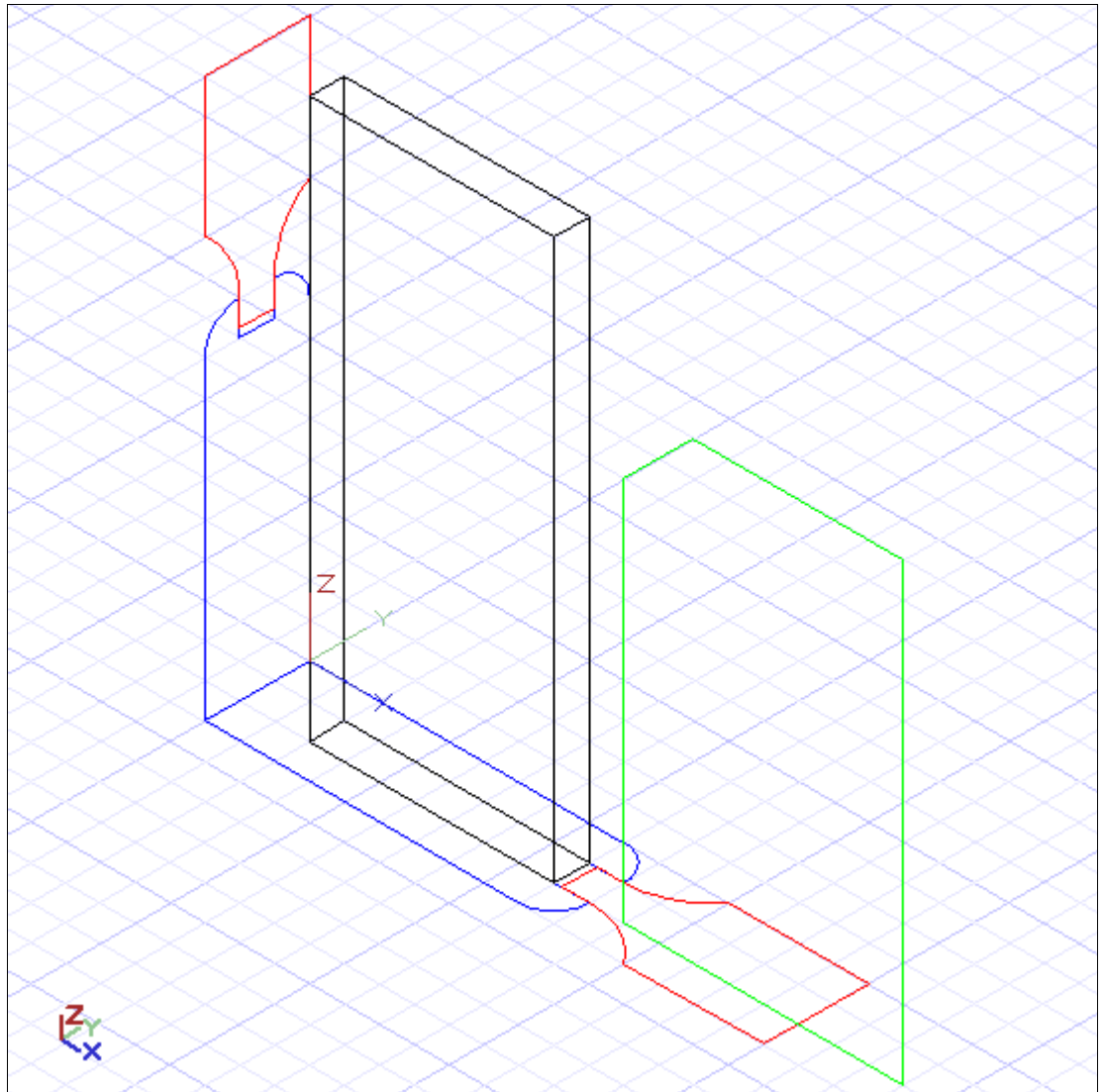
8.
Using the subtract
option, imprint the
new profile on the
stile extrusion.

Using the
intersect option,
imprint the new
profile on the rail
extrusion.

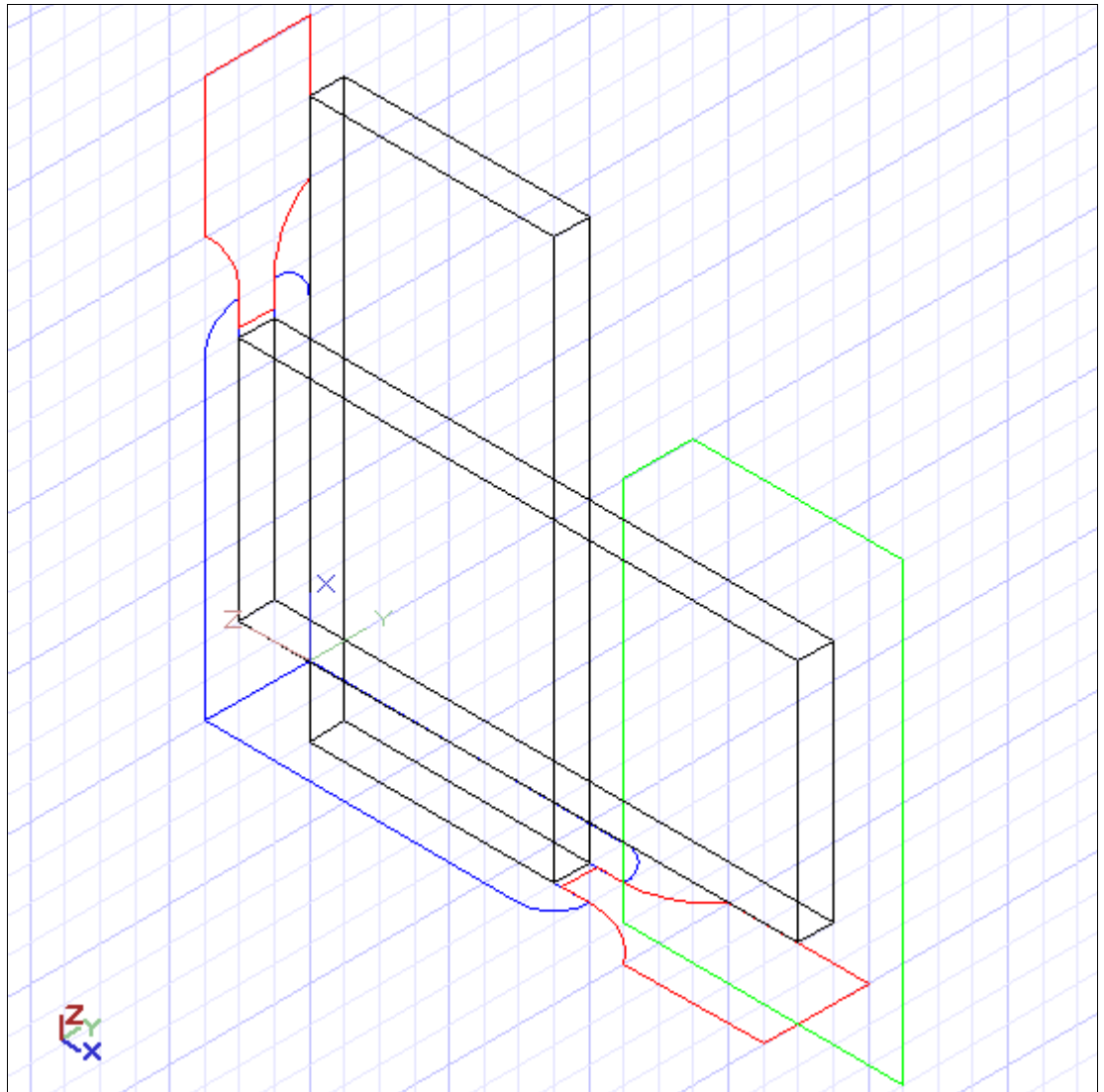


9.
Turn off the 3D
layer.

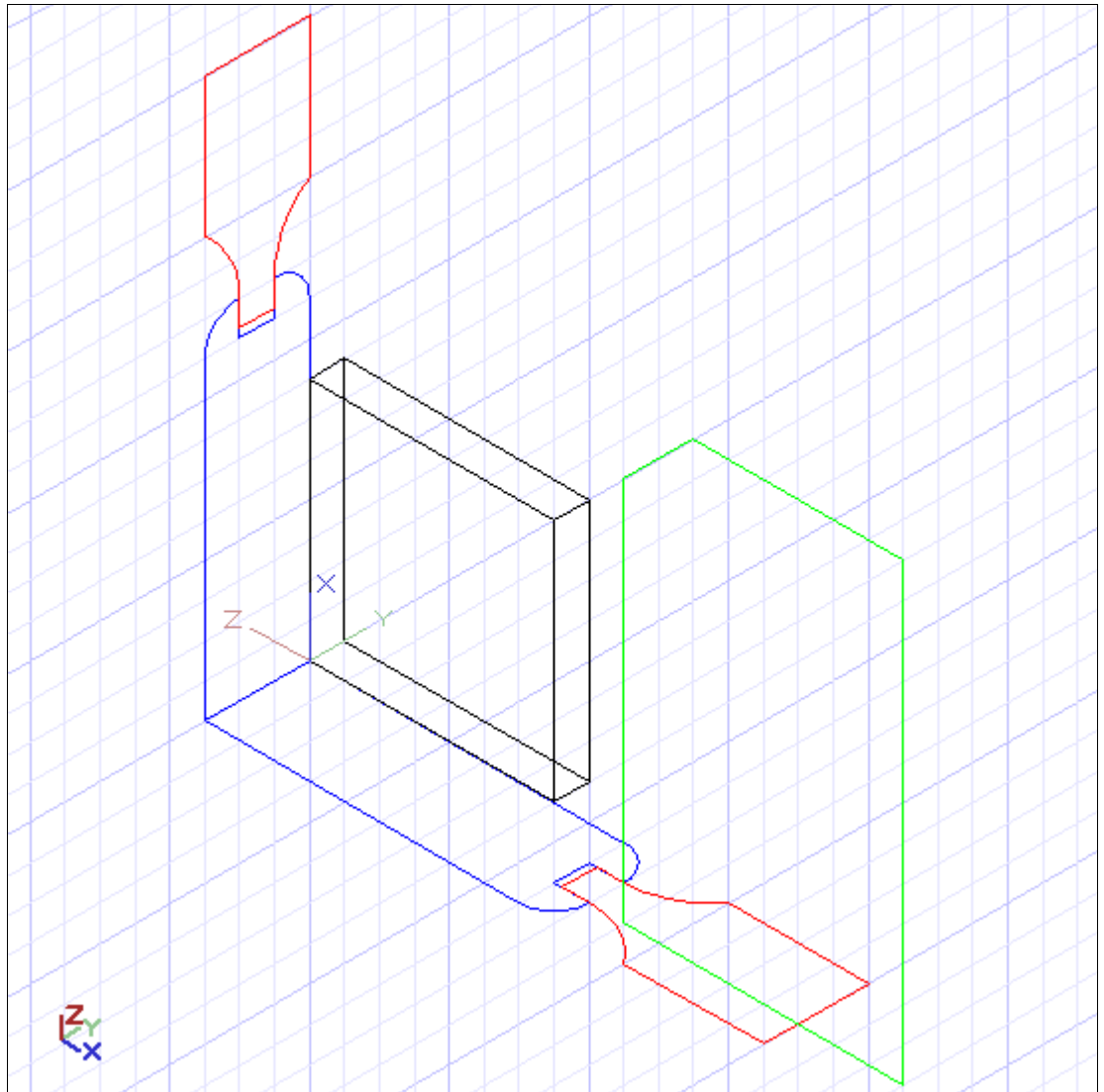
On Layer_0, snap
a 3D box that
describes a top
view of the rail
tenon.



10.
Snap a 3D Box
that describes the
end view of the
rail tenon.



11.
Finish the rail
tenon by
intersecting the
two 3D Boxes.

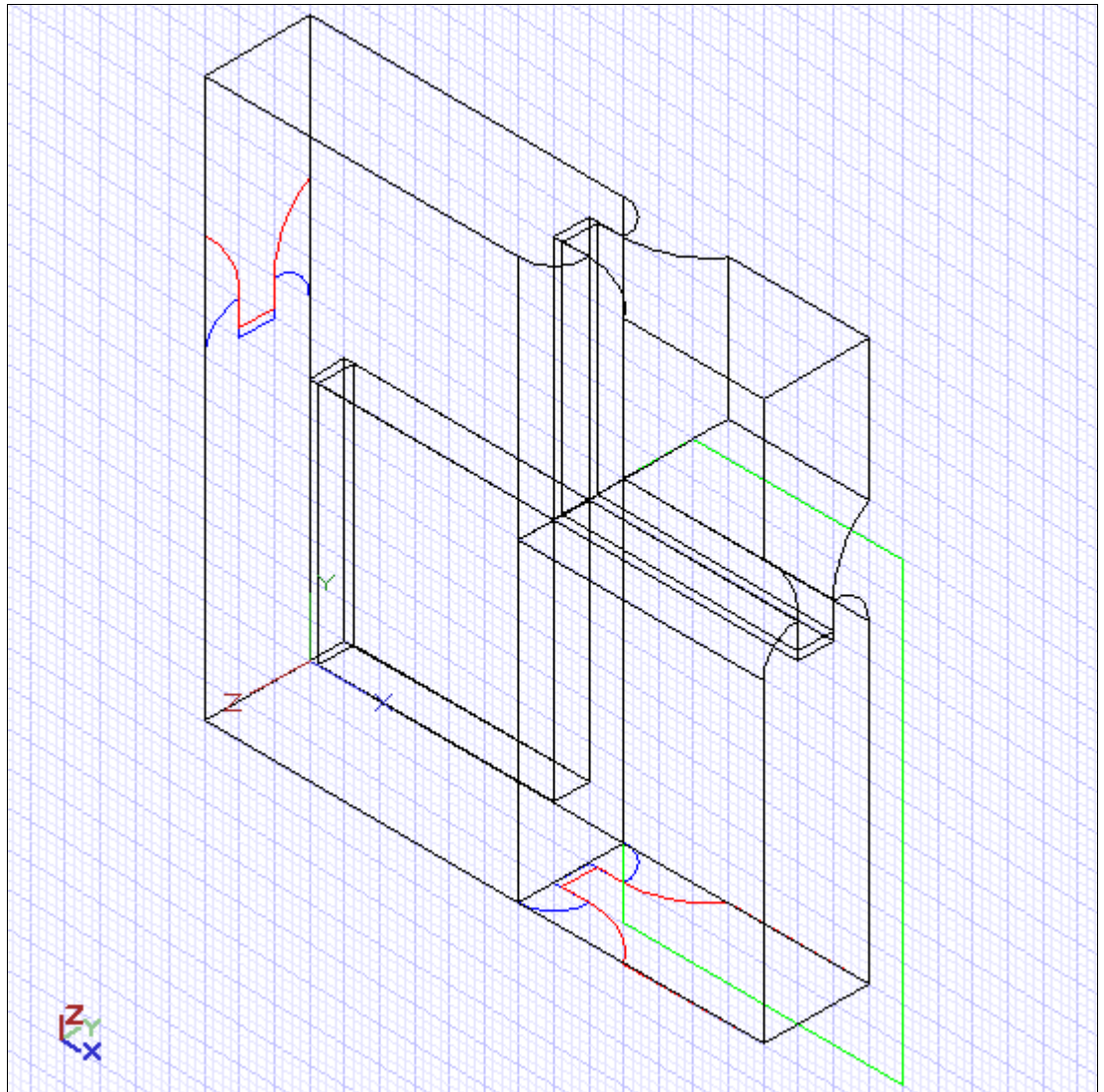


12.
Turn on the 3D layer and add the rail tenon to the rail.

Using the keep-subtrahend option, subtract the rail from the stile to form the mortise.

Slice off 1/16" from the end of the tenon for glue allowance.

Note: At this point, you can save the result as a symbol to be used to quickly draw a completed panel of any dimensions.

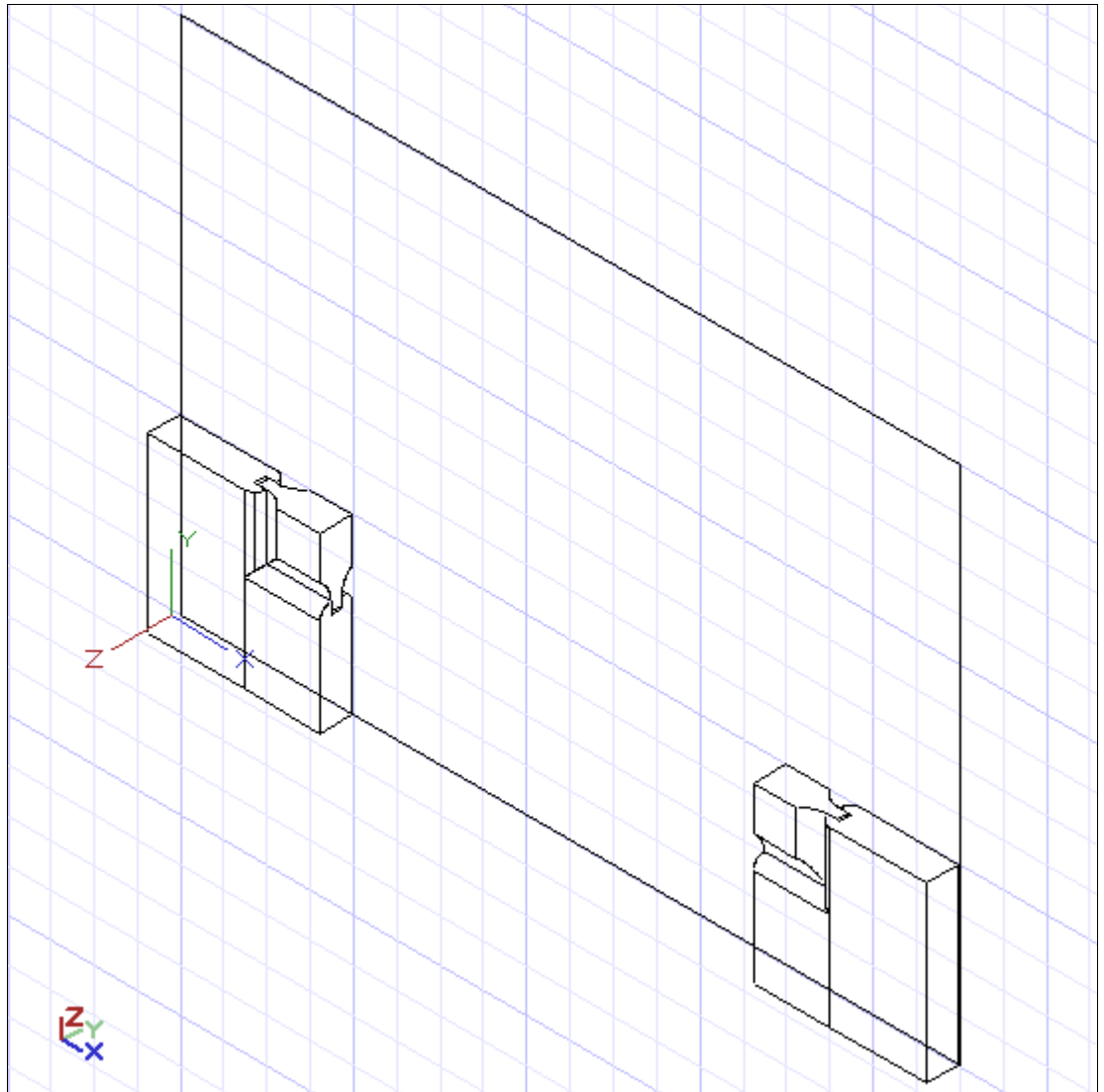


13.
Turn off the
construction layer.

On the Front
workplane and
Layer_0, draw a
rectangle that
describes the
finished
dimensions of the
frame.

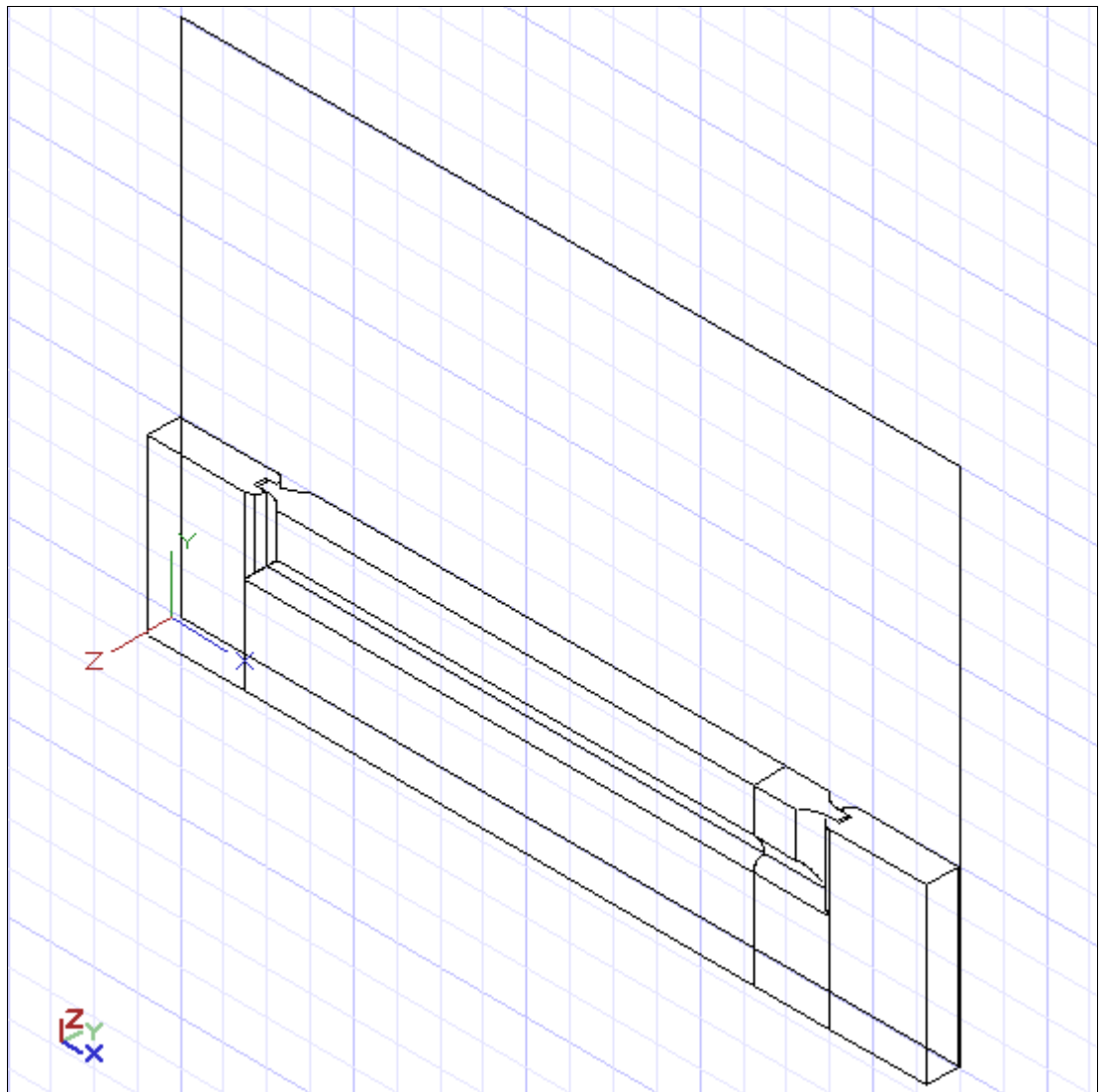
Hidden-line render
and redraw the
screen ([F5]).

Mirror-copy the
rail, style, and
panel corner by
snapping the
mirror line to the
midpoints of the
top and bottom of
the rectangle.

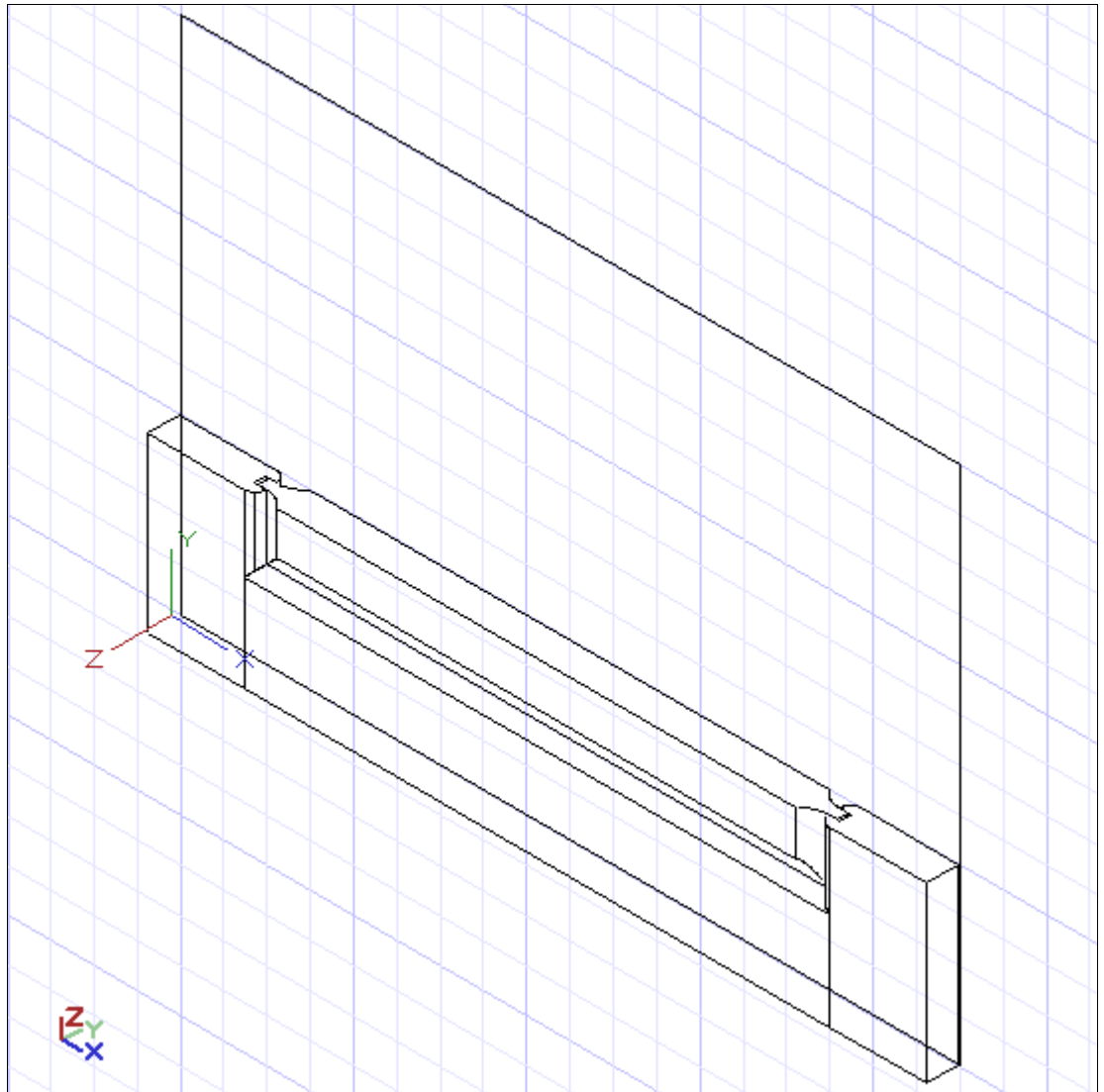


14.
With the Facet Editor, Snap the right-end facet of the left rail to a corner of the left-end facet of the right rail.

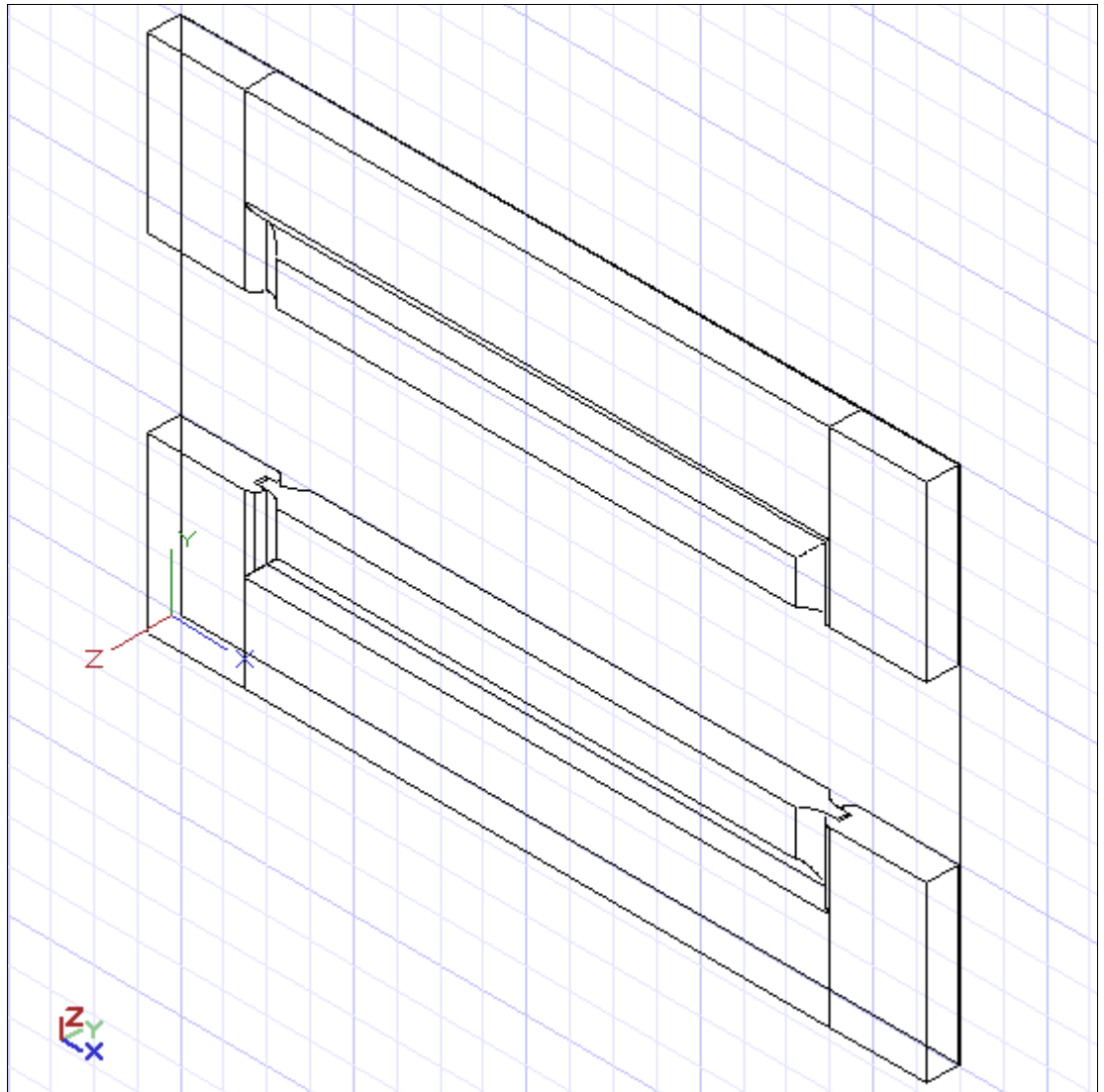
Repeat the operation on the panel corner.



15.
Add the two rails
together.
Repeat for the
panel-corners.

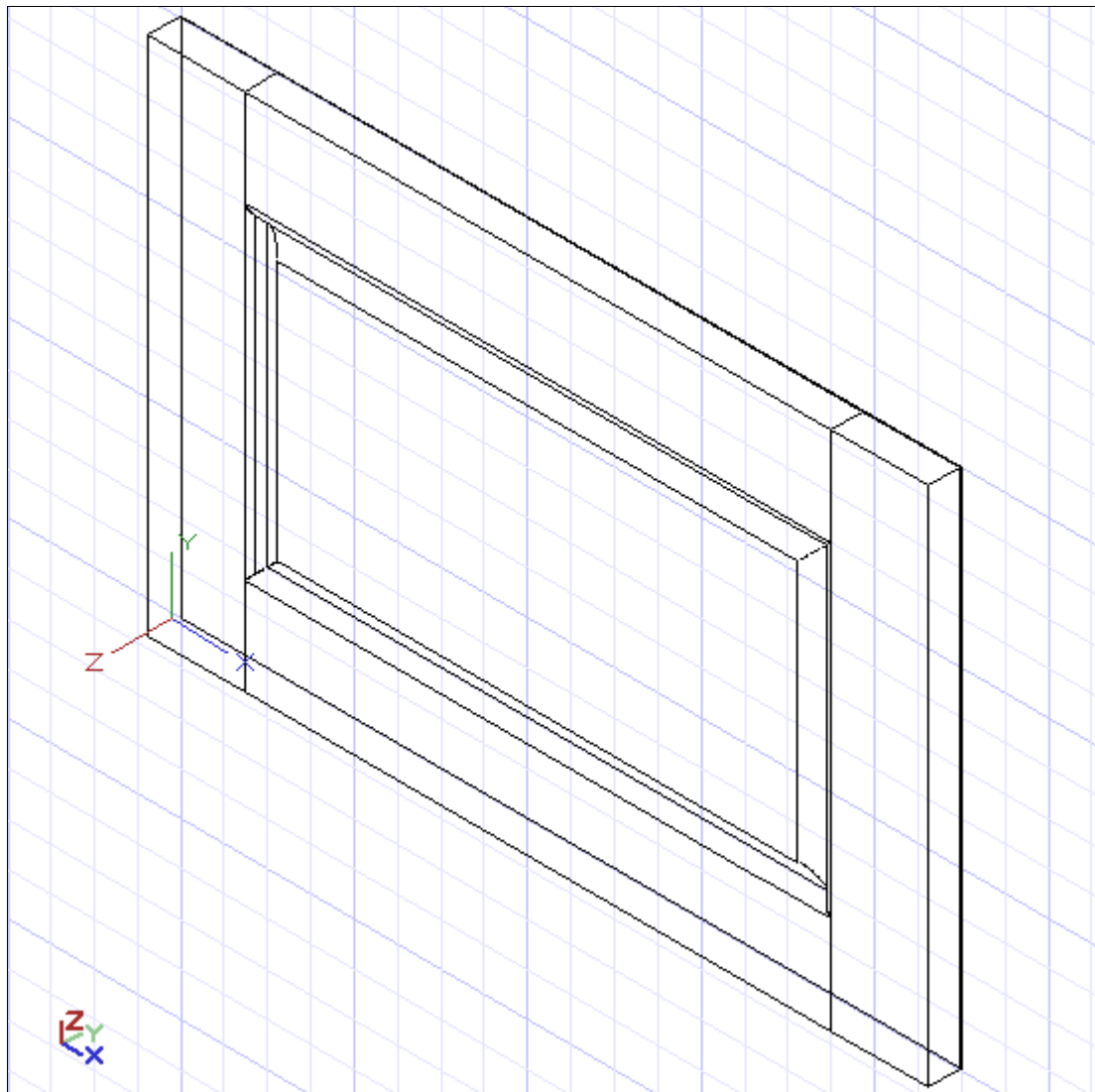


16.
Mirror copy the
rail, stiles and
panel by snapping
the mirror line to
the midpoints of
the left and right
sides of the
rectangle.



17.
Using the Facet Editor, snap the top faces of the stiles and panel to a corner of the bottom facet of a top stile.

Perform the necessary 3D additions.



Revisions:

10/15/04
Original post

10/16/04
Minor edit