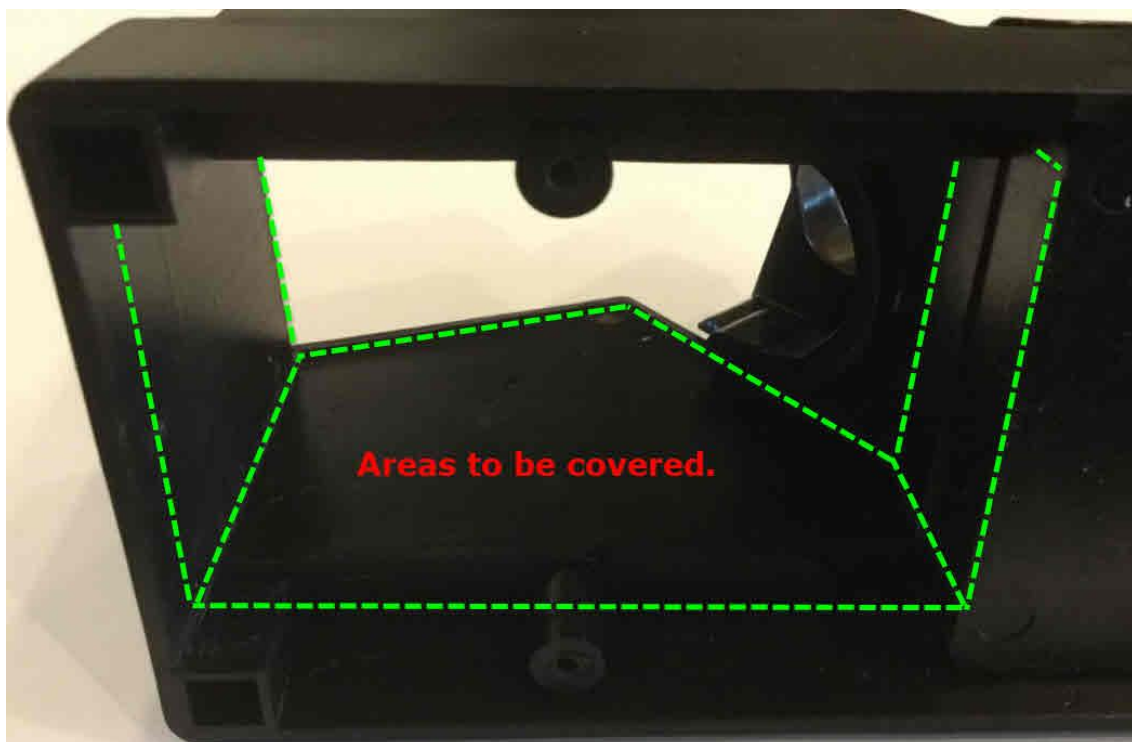# Making inserts, inside panels and sizing PCBs

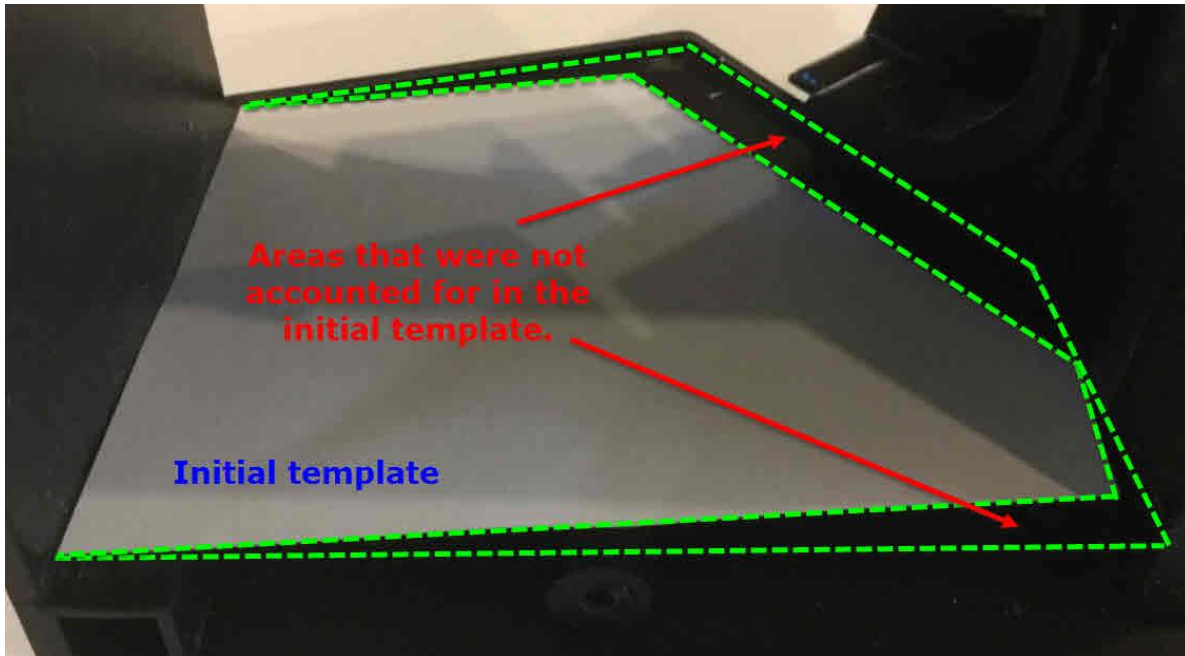It is often necessary to make an insert, panel or PCB to fit the inside of a box or enclosure.

This often gets complicated as there are angles and distances you cannot measure directly.

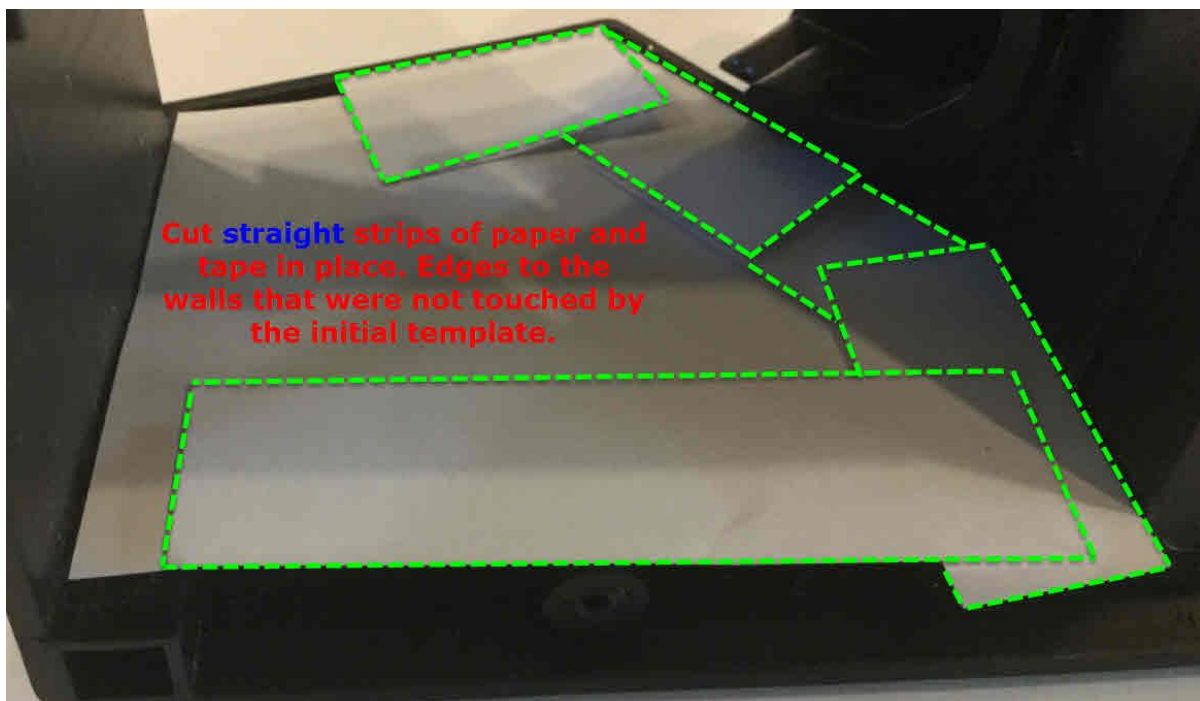The following shows how you can make an accurate insert without taking any measurements.

1. Cut out an initial template from a piece of paper.
2. Align one side of the initial template to a straight wall inside the box.
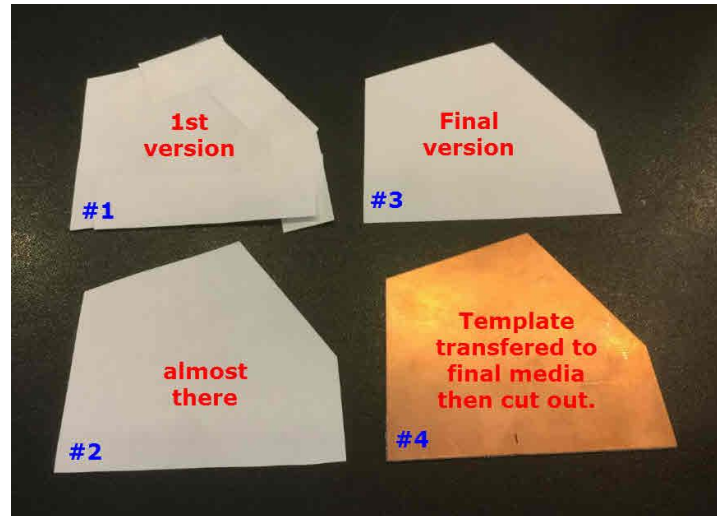
Note, this paper template did not come close to what was needed as there are areas we still must account for.

3. Cut several straight paper strips.
4. Position these strips to the walls where the initial template didn't touch.
5. Tape these strips in place.

6. Refine your templates as needed.
7. Once finalized, transfer the pattern to the final material then cut out.

8. Test the insert to confirm things fit.
9. If need be, glue in place.
10. Since the material used here is copper clad it was soldered at the inside corners.

Finished insert.