Full Guide to the Guide Mesh

In this guide you'll find the essential rules for the technique as well as a collection of tips and tricks. You can use this as quick reference for your own projects if you forget any of it. Watch the accompanying chapters titled "Full Guide to the Guide Mesh" to see these rules and tips in action.

Essential Rules

Rule #1

Shrinkwrap modifiers go below the Subsurf modifier.

Rule #2

The Subsurf Render Levels of the Guide Mesh need to be 2 levels higher than the Final Mesh's Render Levels. The recommended levels are level 2 for your Final Mesh, and level 4 for your Guide Mesh. Anything higher can slow things down significantly.

Rule #3

Keep the Final Mesh's subsurf topology clean and consistent for the best results. Avoid having areas where faces are really congested.

Rule #4

Make sure to have control loops around all cutouts and all the borders of the panels. This extra geometry ensures cleaner shrinkwrapping.

Rule #5

Adding thickness to shrinkwrapped panels:

1. Select all the vertices of the panel, then inset everything by 0.004. This creates a control loop around the rim and around the cutouts.
2. If the panel was mirrored, insetting will create an unnecessary control loop down the middle. Fix this by deleting the faces in the middle, and then move the middle edges to the middle to close the gap.
3. Check model for any possible issues caused by insetting, like edge flow problems or overlapping geometry.
4. Sharpen any corners that need to be sharper.
5. Select the edges around the rim and the cutouts and give those edges a Bevel Weight of 1.
6. Add a Solidify modifier with a Thickness of 0.002.
7. Add a Bevel modifier with Width Type set to Percent, Width Percent set to 100%, Segments set to 2, and Limit Method set to Weight.
8. Add a Weld modifier set to a Distance of 0.0001 to merge the vertices in the middle of the rim.
9. Check alignment with surrounding panels.

Tips and Tricks

Tip #1

The closer the shape of the Final Mesh is to the shape of the Guide Mesh, the more accurate the shrinkwrapping will be. And don't make things too low poly, this can have a major impact on the shrinkwrapping accuracy in certain situations.

Tip #2

Vertex Groups can be used to exclude vertices from being shrinkwrapped. This can be useful in various situations like when extruding parts of a panel.

Tip #3

Bad topology on the Guide Mesh can be fixed by good topology on the Final Mesh. If the Guide Mesh has triangles that affect the shading, reface that area on the Final Mesh

to have quads instead. Then when these quads are shrinkwrapped onto the triangles it results in a smoother surface.

Tip #4

Subsurf Creasing can be used on the Guide Mesh to solve tricky modeling challenges. Although this creates a sharp angle on the mesh, shrinkwrapping a non-creased Final Mesh onto it will result in smooth bevels through the crease still.

Tip #5

If subsurf at level 2 isn't enough for closeup renders and extra smoothing is needed, there are two options. The first option is to add an extra Subsurf modifier at the bottom of the modifier stack. This will work well as long as the Final Mesh topology isn't horrible. The second option is to increase the subsurf levels. The Guide Mesh subsurf level can be increased to level 5 and the Final Mesh to level 3. The first option is faster to render but doesn't guarantee perfect surfaces, the second option can be much slower but your results will be perfect.

Tip #6

A Guide Mesh is not always necessary. It's best when used for cutouts that are more straightforward, like a headlight cutout along a consistently curved surface. If a surface is a more complex shape, or if a cutout is really large, it might be best to model the cutout into the Guide Mesh, or not use a Guide Mesh at all if you don't need it for other things. Trying to exclude complex details from a Guide Mesh can end up being more trouble than it's worth.