Full Guide to the Guide Mesh

These are guidelines to use as quick reference in order to help you maximize the usability of these methods in your own projects. This may be updated as the techniques are developed more. Watch the accompanying chapter "Full Guide to the Guide Mesh" for a visual illustration of the techniques and all of the rules.

Rule #1

Shrinkwrap modifiers go below the subsurf modifier.

Rule #2

The Guide Mesh should be at least 2 subsurf levels above the Base Mesh. The Base Mesh faces must be larger than the faces they're shrinkwrapped onto else it'll cause flat spots.. Typically level 2 for the Base Mesh and 4 for the Guide Mesh is good. If your Base Mesh still needs another level of subsurf for higher detail renders, then add an extra subsurf modifier AFTER the shrinkwrap modifier.

Rule #3

Make sure to have container loops around all details like cutouts, as well as around the rims of your panels. This extra geometry ensures cleaner surfaces and better bevels.

Rule #4

The shrinkwrap modifier is calculated based on the Guide Mesh's *visible* detail level. Meaning the Guide Mesh must have the subsurf View level set to what you need and this modifier must also remain visible. The Guide Mesh can be placed in a hidden layer though to speed up the viewport. The Base Mesh can have both subsurf and shrinkwrap modifiers set to invisible to speed up the viewport.

Rule #5

The subsurf geometry for your Base Mesh is what matters most for your final surfaces. As long as the subsurf geometry of your Base Mesh looks even half decent, then it will shrinkwrap cleanly onto the Guide Mesh and produce good results. This offers a lot of freedom to have sloppy topology, so it makes facing up areas around details a lot faster and more carefree.

Rule #6

There are a couple ways to add thickness to the panels while keeping shrinkwrap enabled. The best way that results in the most consistent rim and allows for panels to be double sided is as follows:

1. Add and apply a solidify modifier first with X amount of thickness.

2. Add an edge loop through the center of the thickness.

3. Select the new bottom-side faces and remove them from the original vertex group(named "top" for example). Now assign these vertices to a new vertex group(named "bottom" for example) at a Weight of 1.0.

4. Copy the existing shrinkwrap modifier and change the target of the first shrinkwrap modifier to be the "bottom" vertex group.

5. Enable "Keep Above Surface" for this and change the offset to -X amount of thickness.

6. Now select the middle edge loop, Assign it to the "bottom" vertex group at a Weight of 1.0. Then assign it to the "top" vertex group at a Weight of 0.5.

7. Now select only upper and lower rims and slide them in to finish rounding the edges off.

8. Finally, delete the bottom-side faces if they won't be visible.

Rule #7

After adding thickness, sometimes issues can arise around the rim when the curvature is strong but there's not enough geometry to support it. This can cause a lip around the rim, and to fix it you simply need to move the rim vertices until it looks right.

Rule #8

The closer your Base Mesh shape is to your Guide Mesh, the better your results will be. Having a Base Mesh that is too low poly compared to the Guide Mesh can create problems such as Rule #7.

Rule #9

If anything's causing trouble while being shrinkwrapped, or if you just need to be able to edit areas that are currently shrinkwrapped, you can always remove vertices from the vertex groups.

Rule #10

You don't have to leave the shrinkwrap modifier active. If you want to just use it for laying down the topology you need for all of your model's details, you can then apply the shrinkwrap modifier. Just makes sure to have enough geometry on your model to keep those perfect curves. You can either manually add in geometry, or even apply a level or two of the subsurf modifier first, and then apply the shrinkwrap modifier. It's not ideal, but gets the job done.

Rule #11

Bad topology in a Guide Mesh can actually be overcome if you shrinkwrap clean topology on top of it. Sweeettttttt.

Rule #12

For special circumstances, you can remove the rim itself from the vertex group affected by the shrinkwrap modifier. This was used often for the Corvette for more complex areas along curved surfaces, such as the vent area on the front fender The rim of the vent when shrinkwrapped produces a rounded effect on the slant because the subsurf geometry in the area is being pulled up toward the guide mesh. The solution is to remove the rim from the vertex group so nothing on the slant is affected by the shrinkwrap modifier. It might be a good idea to copy and apply a shrinkwrap modifier before removing vertices from the vertex group to make sure the Base Mesh is as close to the shape of the guide mesh as possible. If the Base Mesh vertices are out of shape, then they will end up physically out of shape once removed from the shrinkwrap vertex group. See video for a clear example of this.

Rule #13

When removing vertices from vertex groups, they could end up out of place if you don't make sure they're flush against the guide mesh first. One way to do this is to copy and apply a shrinkwrap modifier before removing them from the vertex groups. If your Base Mesh is extremely low poly compared to the

Guide Mesh though, copying and applying shrinkwrap may cause some problems. So it may be better to just manually check for out of place vertices. Again see video for clear example of this.

Rule #14

When animating, don't forget to parent the Guide Mesh to the Base Mesh if you keep shrinkwrap enabled.