Disclaimer: This is just a general process, your needs may vary based on many different criteria.

Setup

Work your way through the simulation tree.

- ☐ Apply your materials
- ☐ Define element types
- ☐ Add contacts
- ☐ Add connectors
- ☐ Add loads
- ☐ Add fixtures
- ☐ Create a draft quality mesh and run

Troubleshoot if Necessary

For stability issues:

- ☐ Use soft springs or inertial relief in order to get the software to solve
- ☐ Look for missed contacts or fixtures and add them
- ☐ Turn soft springs or inertial relief off and attempt rerun, repeat if not solved

For errors:

- ☐ Use the SolidWorks knowledge base to look them up
- ☐ Contact your VAR, Graphics Systems number is 800-454-CADD

Check Aspect Ratios

Once your draft run is successful, check the details under the mesh section in the simulation tree.

- ☐ Check that the percentage of elements with an aspect ratio < 3 is over 90%, if complex geometry use 80%
- ☐ Check that percentage of elements with aspect ratio > 10 is less than 5%
- ☐ If the aspect ratios lie outside of these values, use the mesh plots to determine if you need a global mesh refinement or if you need to apply local mesh controls to improve the values

Run High Quality Analysis

- ☐ Run an analysis with high quality elements
- ☐ Create plots as necessary with sensors defined in areas of interest for easy tracking of critical values during convergence

Check Convergence

We need to check that the problem has become independent of the mesh size.

- ☐ Loop through mesh refinements, successive runs should double the number of nodes as a general rule
- ☐ Calculate the change in values between successive runs, typically 2%-5% for a general rule is considered converged and is adequate for design purposes with appropriate factors of safety befitting sound engineering practice