

STATIC FEA CHECK LIST

	Check	Comments
Model		
Compare dimensions to drawings		
Check if corrosion was considered if applicable		
Shell models- check that model was built on mid-surface		
Shell models- check assumptions on joints		
Plate like structures- shell model the correct choice		
Beam like structures- beam model the correct choice		
Buckling – plate like structure – shell model		
Check GA drawing to see if all items of concern was included		
Material		
Check units and value of Elastic modulus, Poisson, density, thermal expansion		
Check allowables and ensure it was used correctly in report		
Check material and acceptance criteria in report		
Boundary conditions		
Check contacts closely		
Check if model is correctly constrained		
Evaluate if appropriate- distance from point of concern, prevention of moments		
Loads		
Compare loads applied to value specified on drawings, calculation sheet etc.		
Check that if symmetry model that loads is also halve the total		
Check direction of loads and if all applicable surfaces are selected		
Forces: was total or per item used		
Evaluate if all applicable loads was applied, check GA drawing and datasheet		
Evaluate the different combinations of loads and compare to Code		
Mesh		
In areas of complex bending stresses verify if at least 2 elements through thickness		
Perform Stress Error plot scaled to 5%, 10%, 25% and determine the areas that may need further refinement.		
Change Stress plot to discrete to see if stress distributions is smooth and not jaggie		
Generate an elemental stress plot and verify the stress distribution lines		
Plot aspect ratio (smaller than 5) and Jacobian (smaller than 40)		
Visually verify if local mesh refinement was applied to all areas of concern		
Mesh Convergence Check at area of concern		
Were all mesh checks performed		
Results		
Generate a scaled plot, with distinct bands at Code allowables (If possible)		
Check animation plot		
Generate an Iso-plot at the Code allowables and check if no point exceeds its specified limit		
Verify the deformed displacement plot for each load case. Close eyes before looking at the plot and imagine what do you expect the plot would look like.		
Check Iso-plots for combination load cases or check linearization results		
Validation		
Perform hand calculation to verify general stresses (p_r/t), (MY/I) , (F/A)		
Compare reaction forces to loads applied		
Perform convergence test at points of interest		
Were validation and convergence checks performed		
Report		
Why is analysis performed?		
Assumptions clearly stated		
Stress plots, deformed displacement plot. Iso plot for combined load case		
Stress Plot includes a description of model name and load case etc.		
Grammar, Figure numbers correct, document number end revision etc		