CREO PARAMETRIC HEALTHY PRACTICES

1. Make your decisions based on your Design Intent. Other factors such as analysis, manufacturing, regeneration time, file size, etc., can be a factor, but Design Intent should be the number one criteria and govern all your choices in Creo Parametric.

2. Always start your models with default datum planes.

3. Do not save models with suppressed objects.

PARTS

4. Delete incomplete features from your model.

5. Start your parts with default datum planes and locate the first feature with respect to them. Do not locate your first feature at some (x,y,z) location to facilitate assembly later on. (The "Universal Coordinate System" method is an outdated system that was very popular in the aerospace industry, but hampers Design Intent.)

6. Do not bury features. Do not eliminate features from your model by creating features that "fill them in" (i.e. Boolean addition) or create holes / cuts that swallow other holes / cuts.

7. Keep your sketches simple. In general, sketches should contain no more than 20 entities.

8. Use patterns and other feature duplication methods (copy and paste, mirror) versus creating multiple closed loop entities in a sketch.

9. When possible, do not include fillets in your sketches. Place these later as rounds. That way, the features can be suppressed (e.g., for structural analysis) and your models

will be more robust (changes to a sketch-based feature will be less likely to cause a subsequent feature to fail and send you into Resolve Mode).

10. Do not extend your sketches beyond the edges of your part to ensure that the cut slices completely through the model. This will result in meaningless dimensions. Instead, choose those surfaces and edges as Sketch References so that your sketches can lock into them.

11. Minimize the number of parents for a feature whenever possible. For example, only use something as an Orientation Reference Plane for a Sketch that you intend to use as a Sketch Reference later.

12. Rounds and chamfers should appear as late in the design process as possible. As a rule of thumb, rounds and chamfers should not appear in the first half of your model tree.

13. Do not dimension features to the edges or tangent edges of rounds and chamfers.

14. Use Intent References for features like rounds, chamfer, draft, etc., so when major features change shape, those features will update their references automatically.

15. Choose your feature types carefully. For example, choose between inserting a hole and extruding a circular sketch that removes material. Example #2: a cylinder can be created via extrude, revolve, sweep or blend. The right choice depends on your design intent.

16. Choose your parent-child relationships carefully. When given the choice between dimensioning to an edge or a surface, choose the surface. And in general, when deciding between a datum plane and a surface, use the datum plane. The default datum planes make the best parents.

17. Choose the order of your features based on design intent. For example, draft features should precede shells to maintain constant wall thickness. You should always

consider manufacturing concerns when choosing feature order, but the order of machining operations does not determine the order in which you design features.

18. Do not convert your default datum planes into set datums. You should create one set of datums for modeling and a second set for geometric tolerancing.

19. Delete unnecessary datums.

20. Make your models user friendly.

    a. Change the names of your features and dimensions.

    b. Organize similar features together into Local Groups, and name those Local Groups accordingly.

    c. Always precede relations with a comment line.

21. Choose pattern types to reduce regeneration time as available (e.g., varying vs. general).

22. Use lightweight holes when possible.

23. For complex pattern geometry, create the lead feature as a surface, transform (copy and paste) the surface, pattern the transformed surface, create solid geometry on the transformed feature (protrusion or cut), and reference pattern the solid geometry.

24. Use UDFs when possible to maintain company standards.

25. Always "flex" your models to make sure your model is robust. Changing dimensions within acceptable ranges should not cause features to fail.

ASSEMBLIES

26. Always fully constrain your static components, especially the first component in the assembly. Typically the first component is assembled with the Default constraint.

27. Do not assemble the generic model of a family table as a component in an assembly.

28. Define Component Interfaces in your parts and assemblies so that all users will be able to assemble those components in higher-level assemblies quickly and easily. Component Interfaces enable drag-and-drop assembly.

29. Use mechanism connections for components that are capable of moving. Define motion limits as necessary. Test the range of motion using the drag functionality.

30. Leverage data from other models when designing components by using External References. The best way to use External References is through Data Sharing features such as Copy Geometry and Shrinkwrap features because the dependency can be controlled.

31. To reduce the number of references, External Copy Geometry and External Shrinkwrap features are preferred over standard Copy Geometry and Shrinkwrap features.

32. Use configuration options to limit the scope of external references in the Reference Control dialog box right from the start. If you have a license for AAX, restrict components so that they can only make references to Skeleton Models whenever possible.

33. Assembly-level features: turn off Automatic Update option for Intersected Models. This option can increase regeneration time, as all models subsequently added to the assembly will be included in the assembly-level feature, whether they are intersected or not.

34. Remove / break any Circular References in your model. Files with a .crc extension are an indication of the presence of one or more circular references.

35. Use Top Down Design (TDD) to build Design Intent at the assembly level using Skeletons, Notebooks, and data sharing features.

36. Use a standard recognizable naming convention for Master Models (i.e., asmname_master.prt), Skeleton Models (i.e., assemblyname_skel.prt), and Map Parts.

37. Use multiple skeletons as necessary to avoid making skeletons too complicated.

38. Avoid putting solid geometry in a Master Model as this will affect your assembly mass properties.

DRAWINGS

39. Use Show & Erase functionality to detail your drawings. At least 95% of the dimensions that appear on your drawings should be feature dimensions.

40. Do not override the values of dimensions.

41. Use the drafting tools in Drawing Mode for additional detailing only. Do not cheat your drawings (e.g., drawing a circle on a drawing as opposed to inserting a hole into a part).

42. If you find yourself creating the same basic kinds of drawings over and over again, save yourself time and effort by creating Drawing Templates.

43. Use Smart tables for BOMs, wire lists, and other reports, so that your drawings will update with changes to the assembly.

44. Filter skeleton models and master models from your BOMs. Use filter rules when possible.

45. Large Drawing Techniques:

    a. Configuration options.

    b. Drawing Reps.

    c. Apply Simplified Reps to drawing views.

    d. Simplify views using Z-clipping and Area Cross Sections as appropriate.

    e. Use the save_display option and retrieve drawings as view only when simply viewing or printing drawings.

    f. Work on multiple smaller drawings and merge them before release.

GENERAL

46. Use Relations to help build Design Intent so that when a dimension or parameter changes, other dimensions and parameters update accordingly. However, be aware that assembly-level relations have disadvantages when used to control part-level dimensions, since the assembly needs to be in session to control those features.

47. Choose a simple layering scheme.

48. Don't go crazy with Mapkeys. Most users usually cannot remember more than 20 Mapkeys.

49. Run Model Check on your parts, assemblies, and drawings on a regular basis and before checking into a data management system.

50. Make your decisions based on your Design Intent. (Yes, this is a repeat of #1 because it is just that important.)