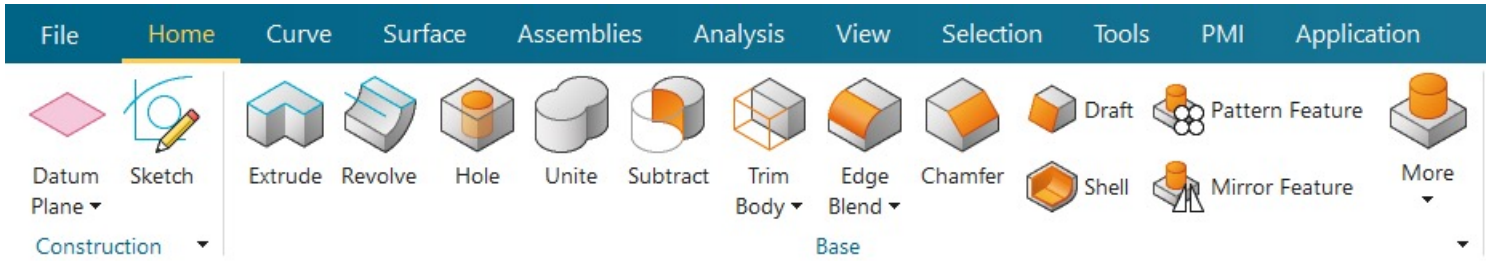
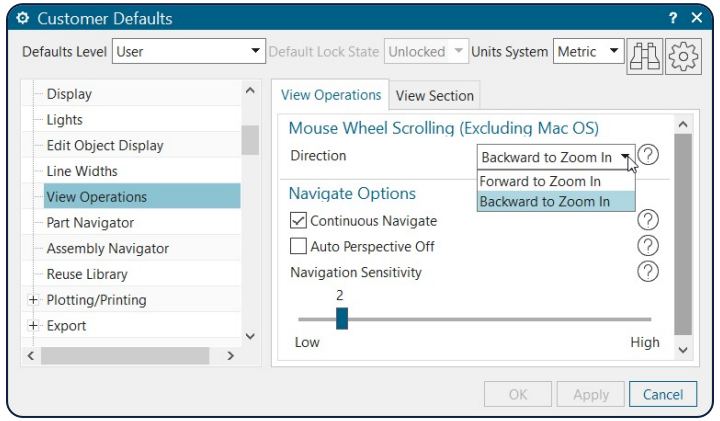
NX CAD: 10 BEST PRACTICES FOR IMPROVING WORKFLOW

Applied CAx

1. Customize the NX Environment



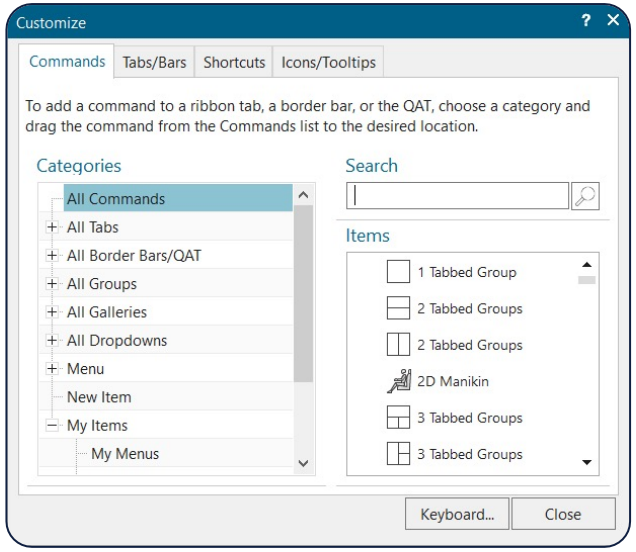


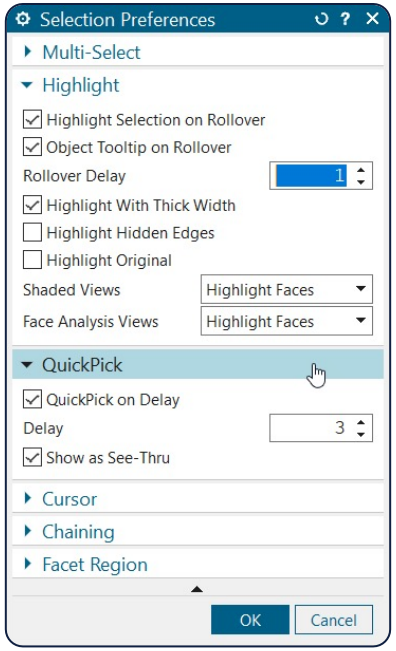
NX allows for a lot of customization to the user interface and NX environment.

Tabs grouping commands and presenting them in a suggested workflow can be seen at the top of the environment – this is called the Ribbon Toolbar.

3 main areas of customization:

- Customer Defaults
- Preferences
- Customize



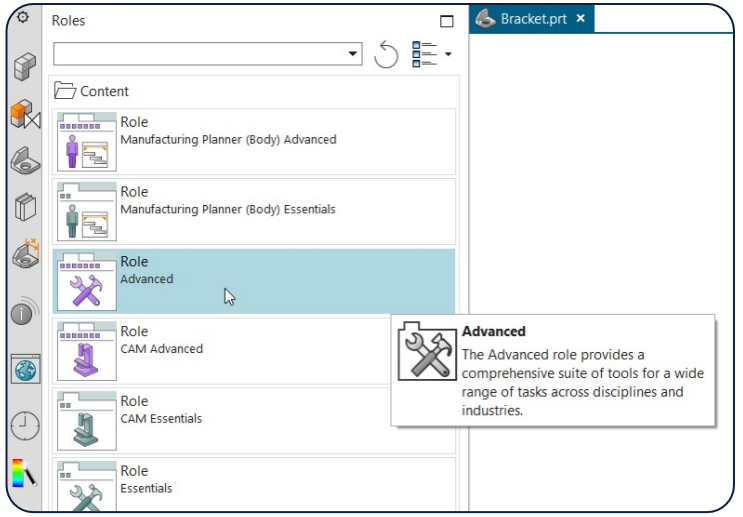


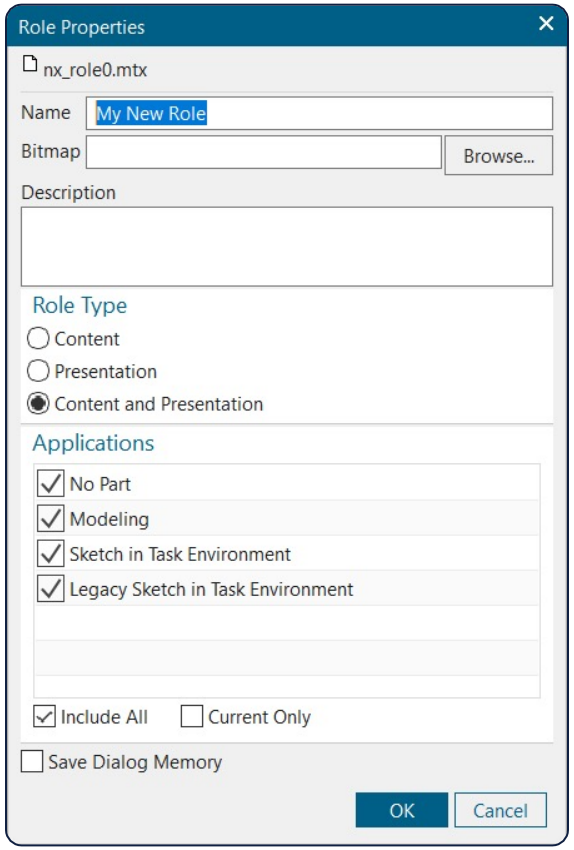
2. Know Your Role

An NX Role is a modified collection of commands and options that can be specifically activated at any time.

The NX Advanced Role is an out of the box set up that will present more commands and options to the user.

Once changes to the environment have been made, a new user Role can be created and saved.



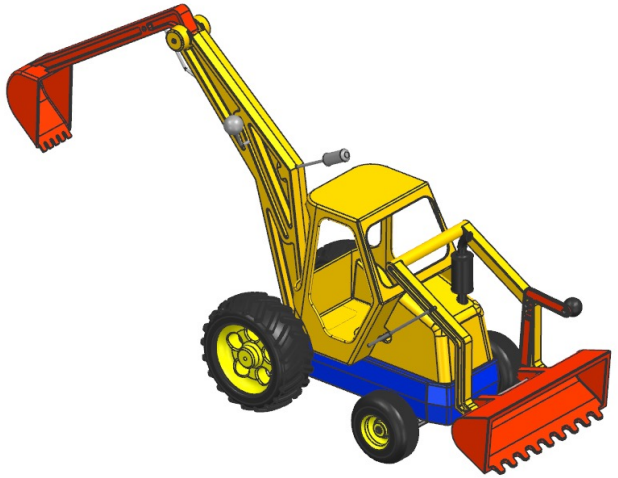


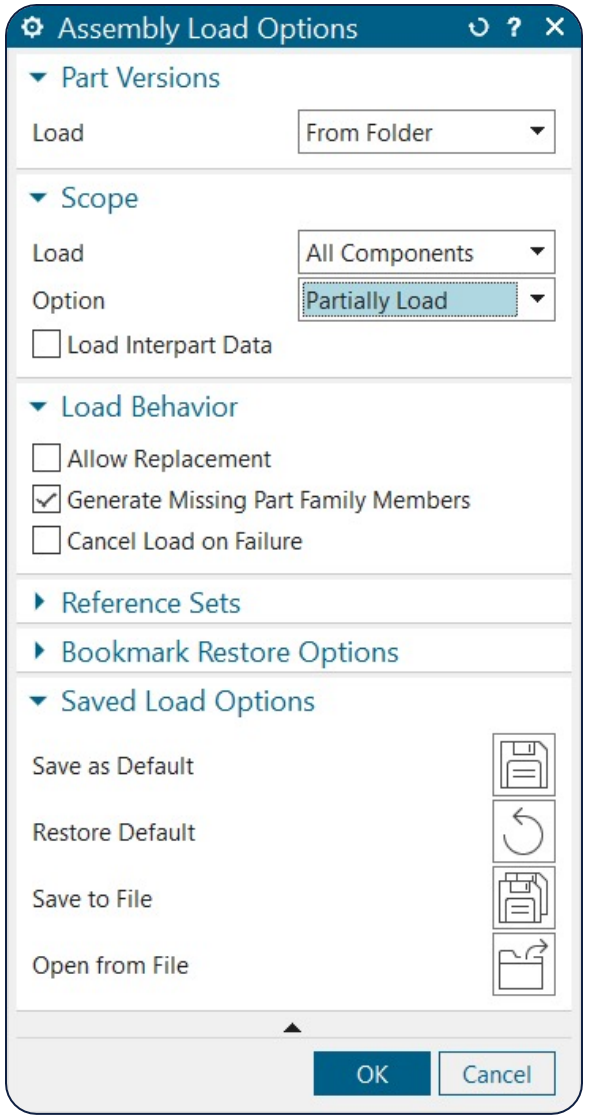
3. Use Assembly Load Options

Assembly Load Options is a vital part of working in NX.

These options allow for various ways in dealing with very large assemblies as well as specifying how NX is to deal with any part that is being opened.

Once set, Assembly Load Options can be saved as the default options or as an external file that can be shared.



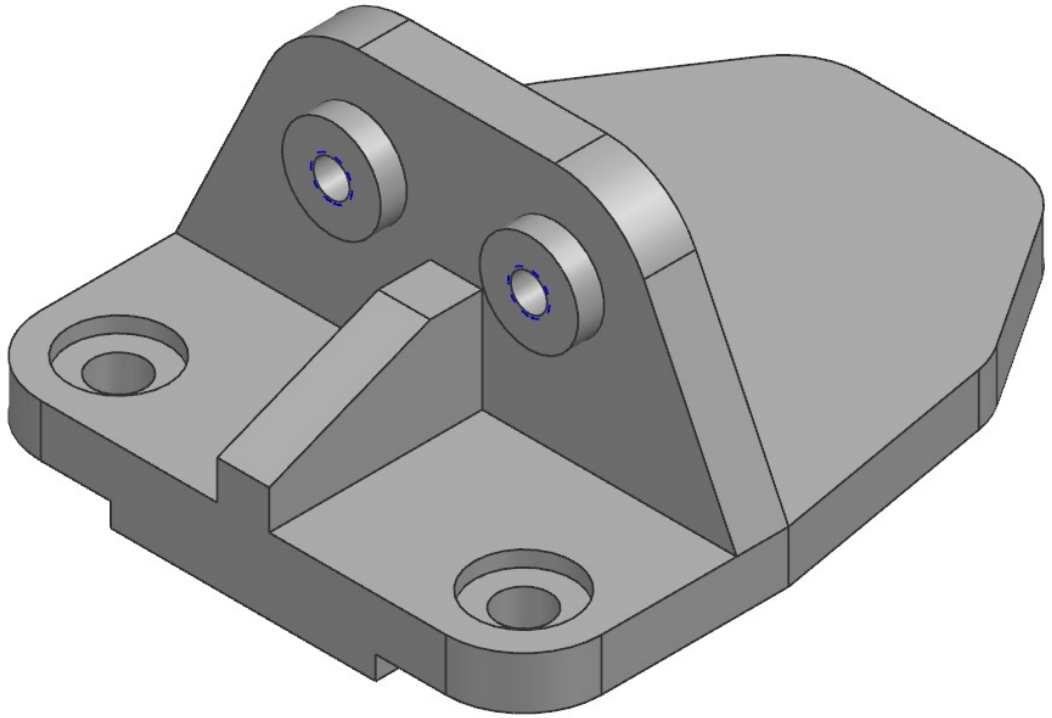


4. Have a Plan

Having a plan of attack when designing a part or assembly is extremely important.

There will always be different plans for different design situations; try to decide in advance how the construction of the part should be set up and which features and options may be needed.

Be aware of varying factors that may contribute to downstream changes in the design and implement strategies to make the design more robust.

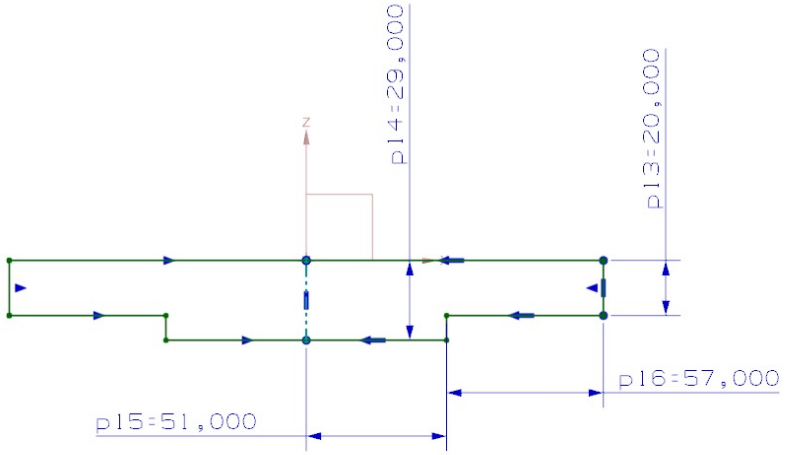


5. Start with a Sketch

Start with a sketch whenever possible.

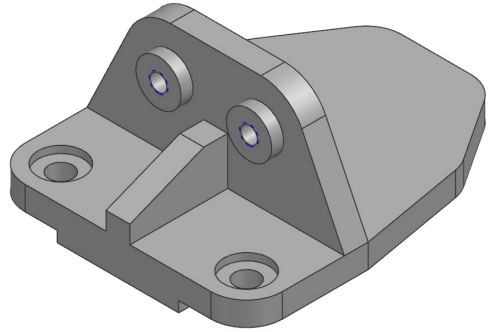
Sketching in NX is a very powerful tool and can heavily influence all the features that follow.

A robust sketch that drives the design can be a life saver.

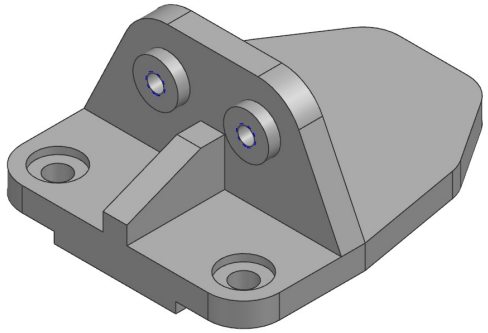


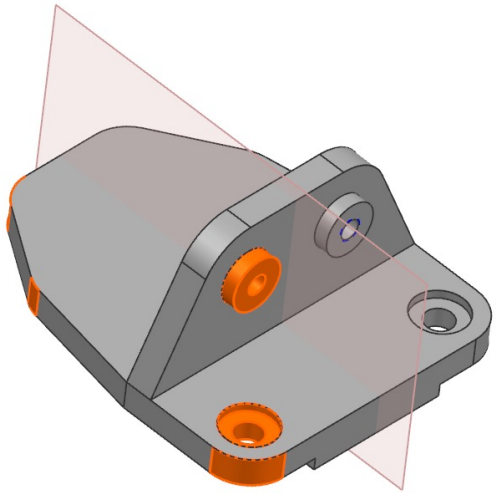
Some tips when creating sketches:

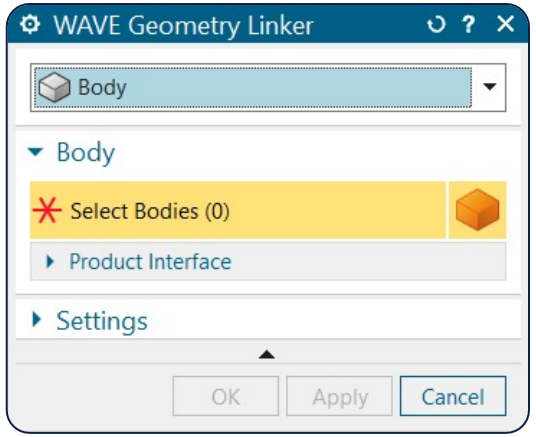
- Constrain the sketch as much as you can
- Use geometric or relational constraints over dimensions for a more robust feature
- Use symmetry and patterns within the sketch environment
- Minimize fillets and rounds and add them as blends later on
- If you are creating a complicated sketch, do a little at a time
- For sketches that are created later in the design, avoid references to detail features such as blend edges
- Sketches can be external and created ahead of the feature, or internal and created on the fly



6. Emphasize Reuse







Taking advantage of existing knowledge, be it a prior example of a part or something that may be similarly constructed, can speed up the design process.

Use WAVE Geometry Linker or Product Interface to bring in aspects of outside objects to use in the design of the new part.

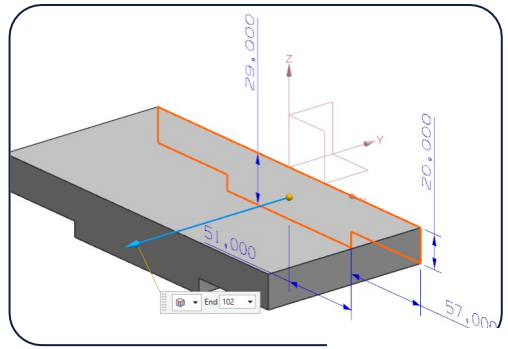
When creating features, use patterns and symmetry as much as possible to make efficient use of time and allow for quicker updates to the part.

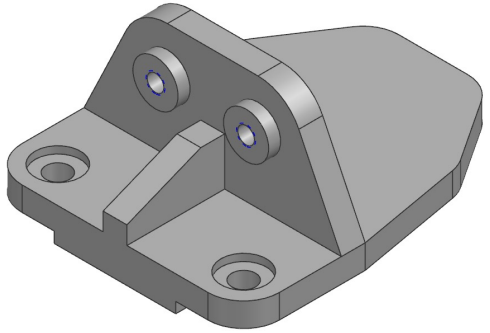
7. Model Features with Intent

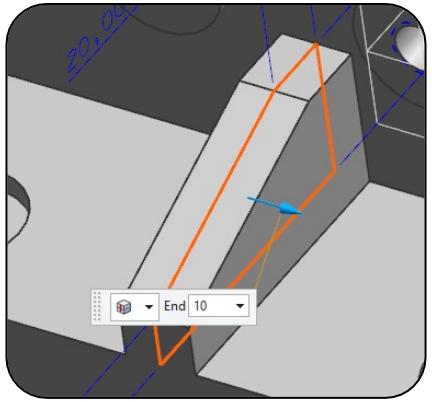
Select the best command for the job and investigate all of the options within.

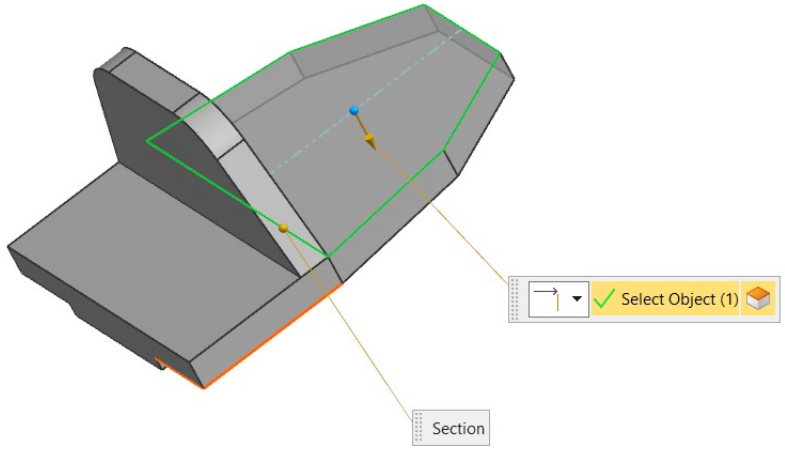
Using Expressions within features can allow for easier control over length or size.

Pay close attention to Selection Intent when picking objects.

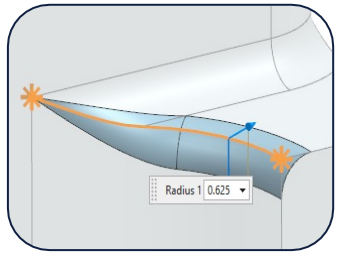


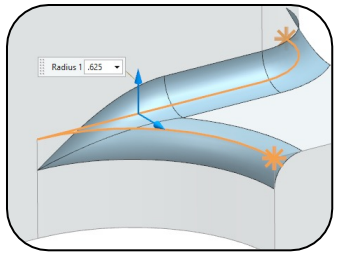


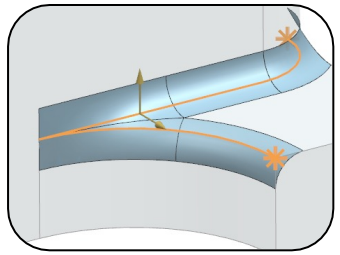


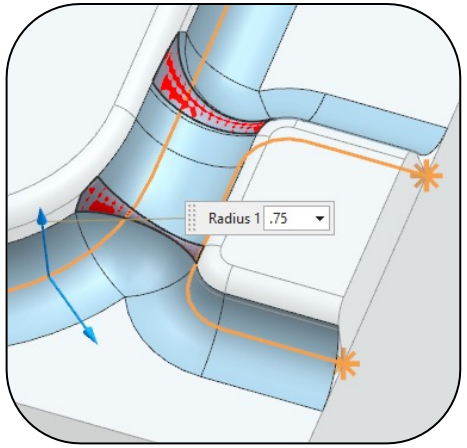


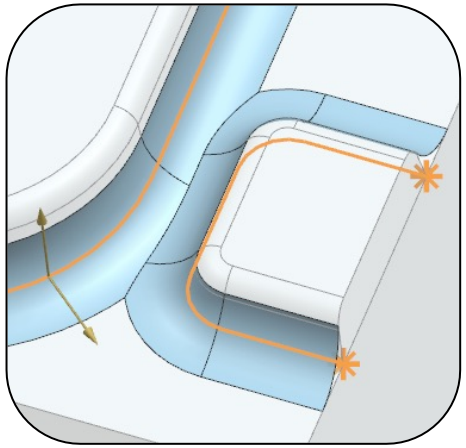
8. Use a Blending Strategy

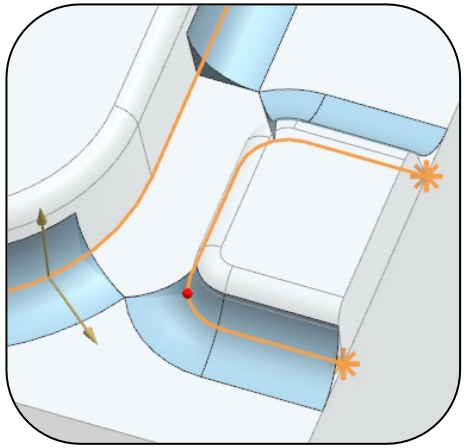












<u>Blend Order</u>:
- Blend last (except for "tool body")
- Blend Large to Small
- "Fillet" first (add material) "Round" second (remove material)
- Blend long "chains" (ladder example)

Step 1) Try Edge Blend;
- Tangent Edge Selection
- Toggle Options: Roll Over / Roll On
- Reduce blend value by .01mm to address similar blend size issues

Step 2) Try Multiple Edge Blends;
- Single Edge(s) Selection
- May require Stop Short or Trim Plane.
- May require radius adjustment (< 0.01mm)

Step 3) Try Face Blend;
- Tangent Edge / Face Selection or
- Single Face Selection

Step 4) Try Multiple Face Blends;
- Single Face(s) Selection
- May require Trim Plane
- May require No Trim option

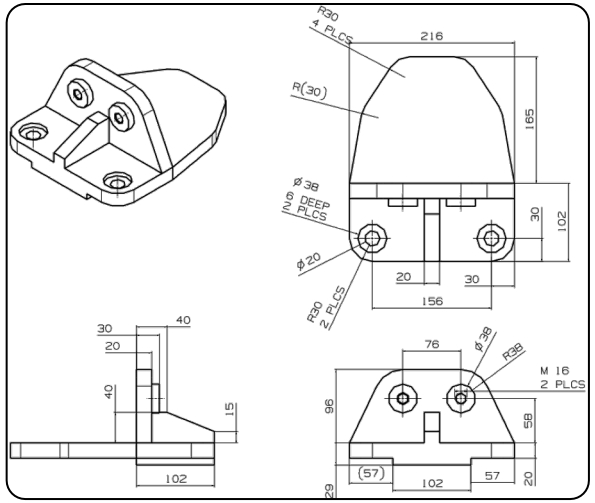
Step 5) Finish with Mesh and Patch.

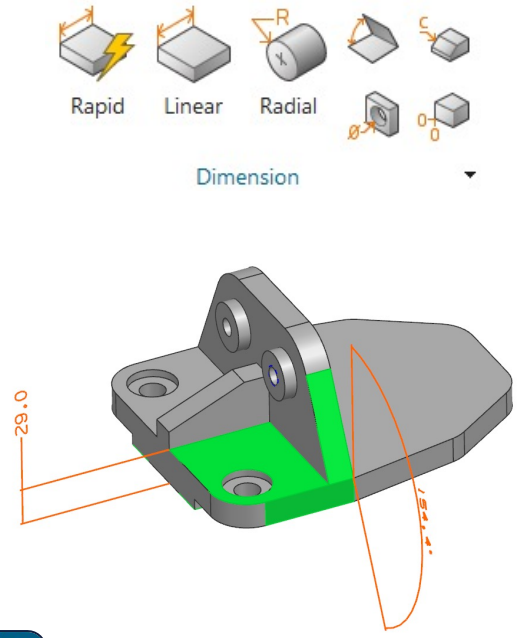
9. Communicate the Design

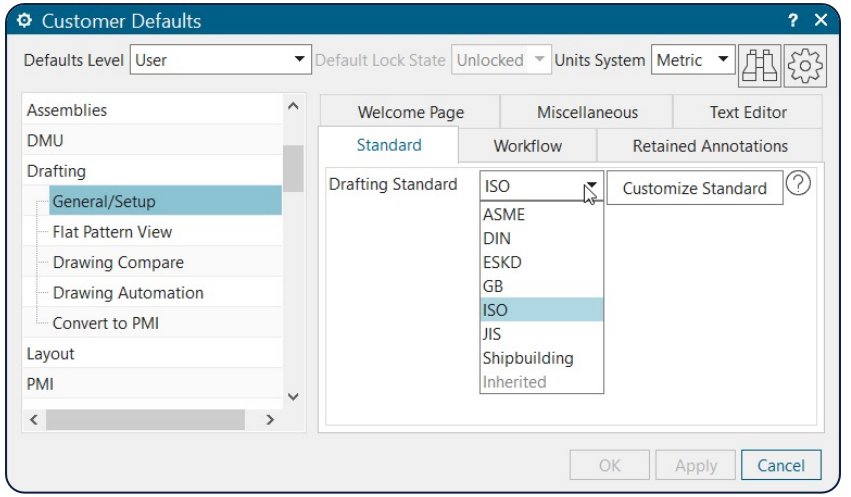
Clearly communicating the design to a fabricator or assembly vendor is an important part of getting the desired end product.

Deciding what standard to use as well as if PMI or Model Based Definition can be used in addition to, or in place of, a 2D drawing can impact how clear the information and intent of a design is relayed.

A well-defined drafting and release process can make a world of difference.







10. Education is Key

Education in NX CAD is important.

NX CAD is moving and changing very quickly to improve the tools available.

Keeping track of information, as well as keeping up with the available tools, and sharing that information can be extremely valuable.

Just being aware that a tool or option exists can dramatically change the design approach for creating a part.

Thank You

For more NX CAD resources, please visit:
www.AppliedCAx.com/resources/nx-cad-resources

AppliedCAx