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MFG468330 – I Want it My Way: Customizing the Inventor Content Center

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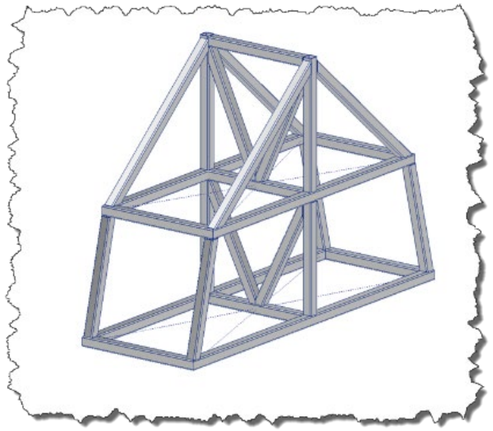
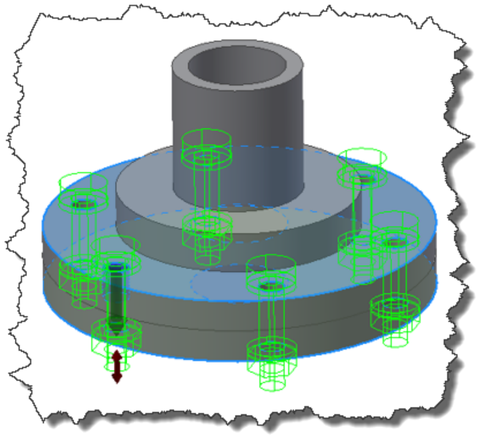
- Autodesk Platinum Partner
- Teach classes on Inventor, AutoCAD, Factory Design Utilities and Navisworks
- Provide technical support
- Consult on design workflows and customer content generation
- Love working with kids, serving in church, the beach and playing basketball!

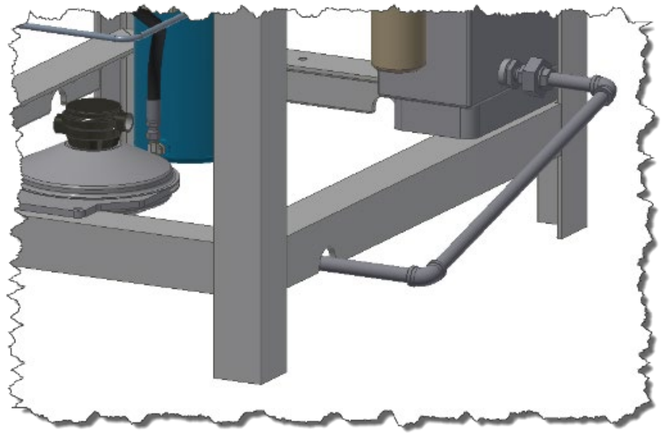
Why is this important?

The Content Center (CC) is a vast repository of parts that can be utilized in virtually every design scenario, but the components must be modified to utilize **OUR** information!

CC contains parts that can range from generic fasteners to highly specialized piping equipment in a centralized, easily manageable location. Designers are all pulling information from the same location and any modifications or additions are instantly available to the team. Autodesk provides a generous amount of content, but the out-of-the-box content is not specifically configured to any one industry or company and we'll want to add our own company-specific content to the CC. This will truly unlock the full potential of the CC!





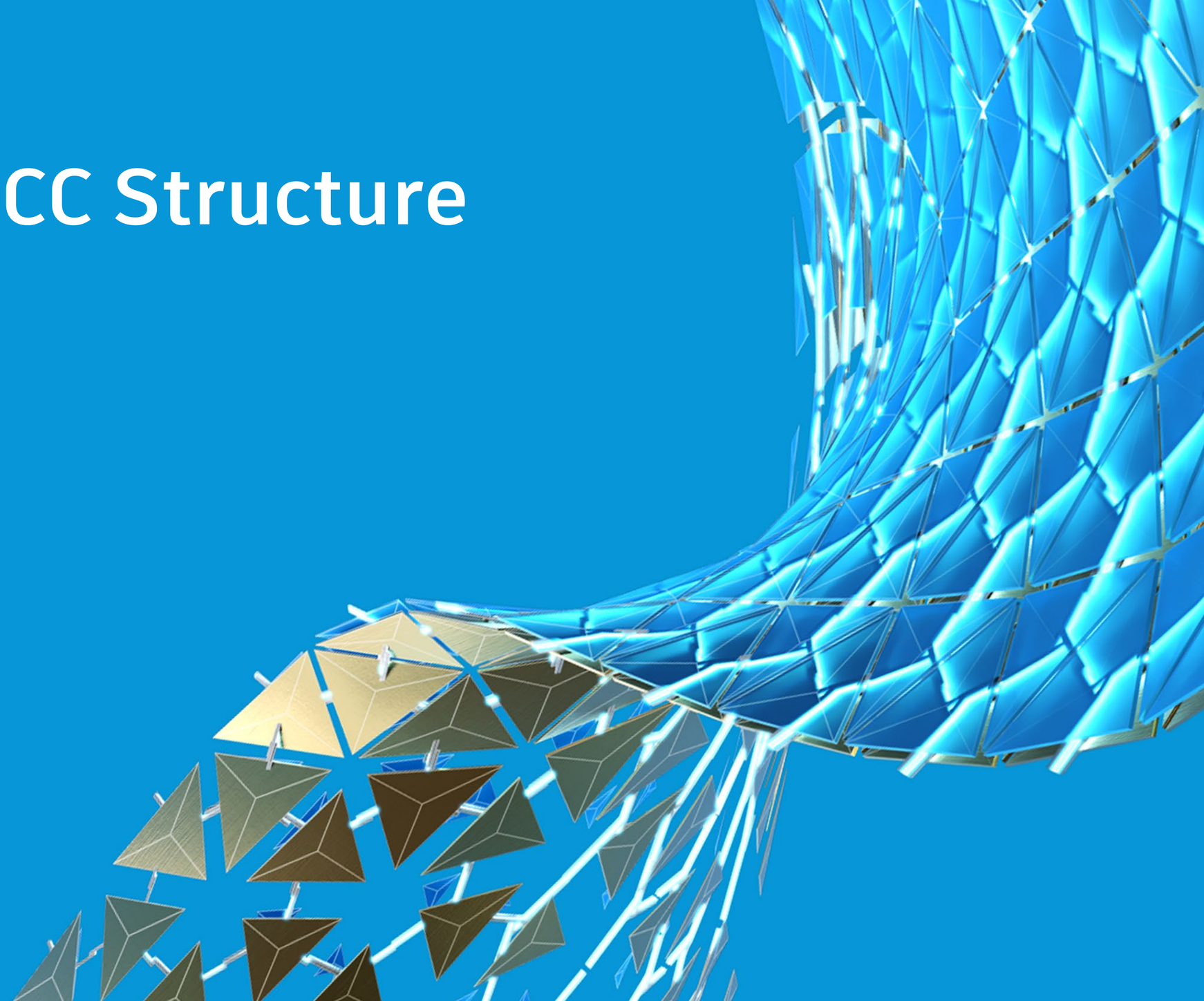


What Are We Customizing?

CC utilizes and allows the modification of TONS of information, so we'll focus on the big picture and modify characteristics that everyone can benefit from

- Create and modify CC library structures to better organize components
- Refine and modify the CC family tables to better suit our needs
- Add new CC families for company-specific designs
- Improve the end-designer's experience by streamlining selection options

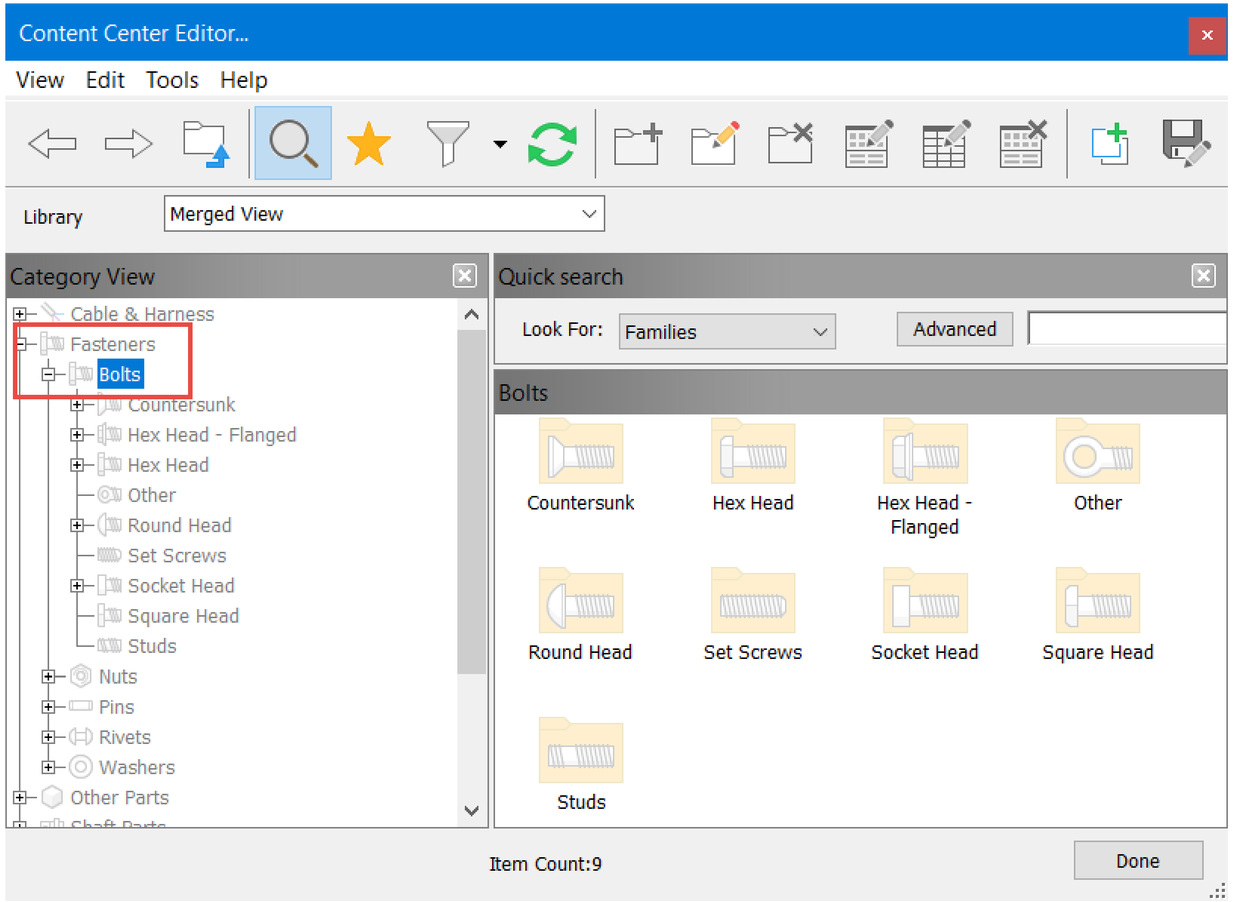
Controlling CC Structure



CC Structure

CC structure is important because each design accelerator requires components to be stored in specific locations

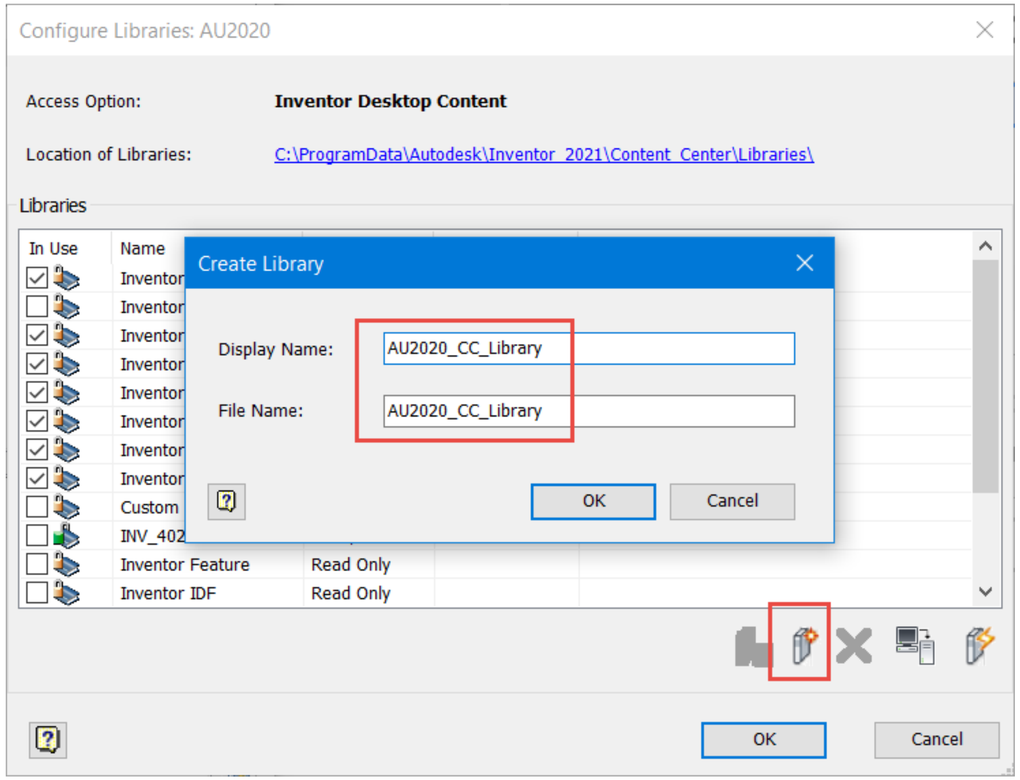
- **Top-level categories contain all variations**
  - Subcategories help differentiate unique variations, such as fasteners
    - Families are stored within both Top-level and subcategories

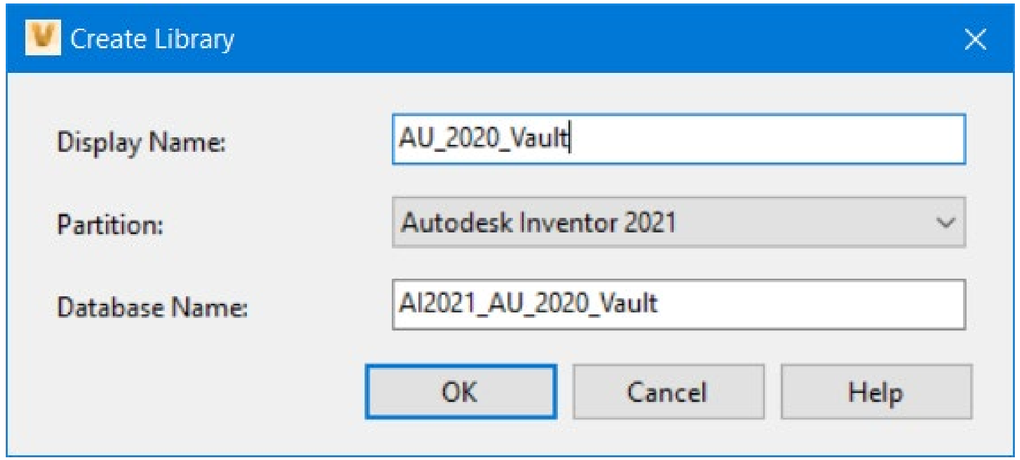


First Things First – Create a Custom Library

In order to Modify CC Structure a custom CC library must be generated

- **Custom libraries can be created in two ways**
  - Within the Inventor project file
  - Within the Vault ADMS Console

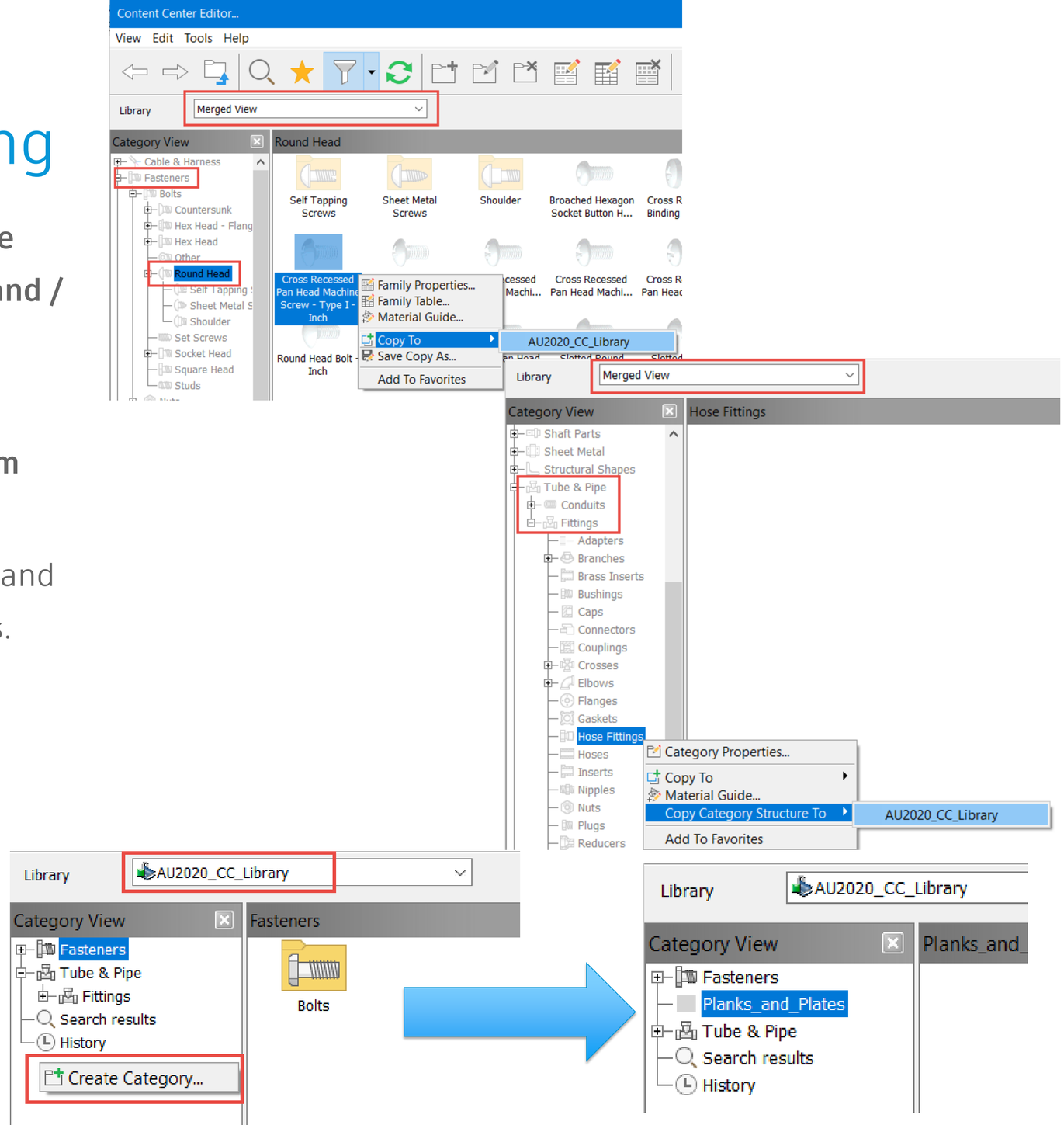




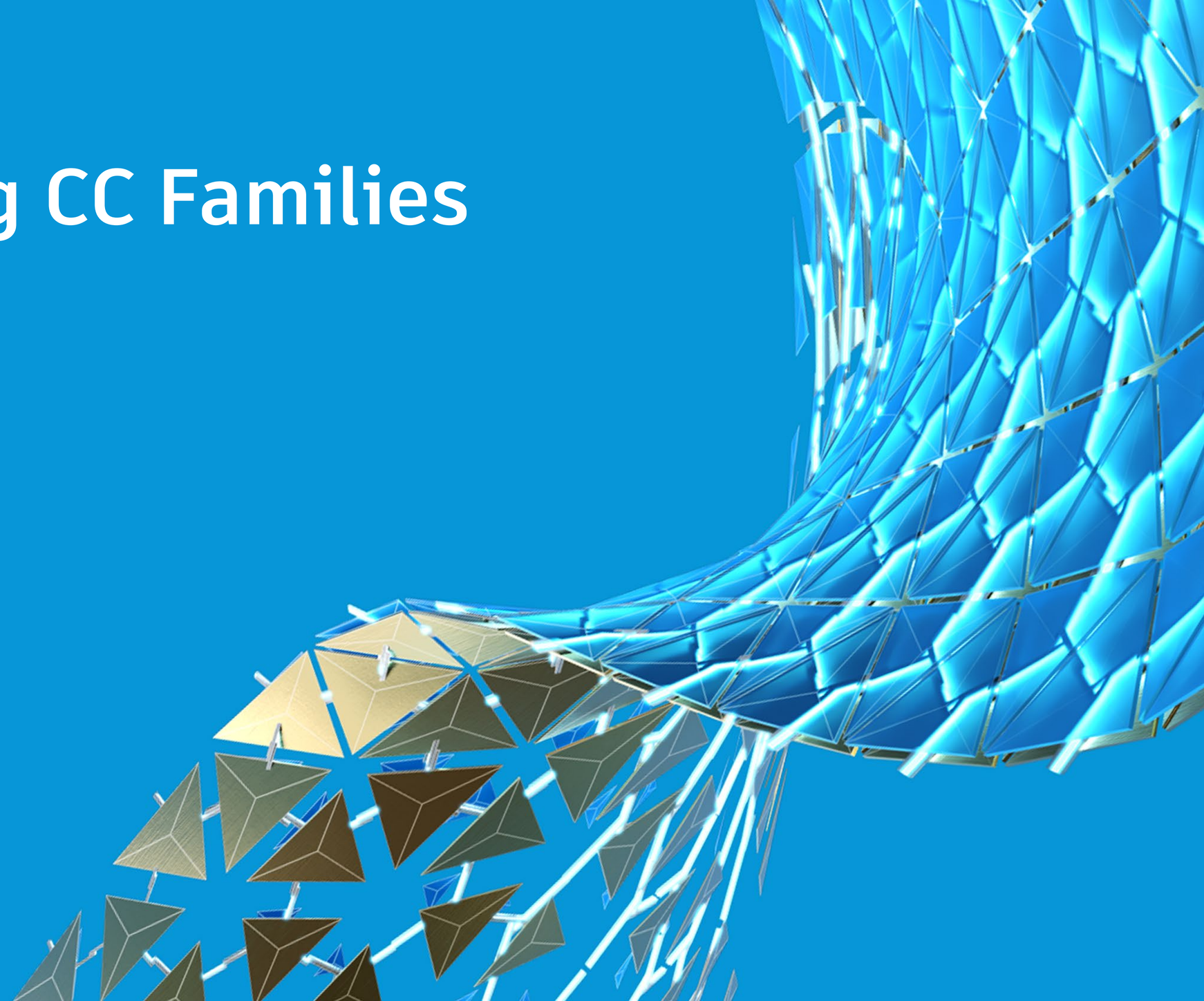
Time for Some Restructuring

Armed with a custom library, the CC structure can be modified to set the stage for family customization and / or new family publishing

- **Copy To / Save As an existing family to the custom library**
  - Use “Copy to” if the original family can change and want the copied family to adapt to the changes.
  - Use “Save As” for a fully independent family
- **Copy the CC structure to the custom library**
  - Best for publishing new content, where only structure is required beforehand
- **Create a new top-level custom category**
  - Use only for component not used in Design Accelerators



Customizing CC Families



How to Customize a CC Family

FAMILY PROPERTIES

The name of the family and the location where generated CC files are stored can be customized, as well as the icon graphics

FAMILY TABLE

This is the most important portion to customize, as the family table drives the component sizing, naming and all other component meta data

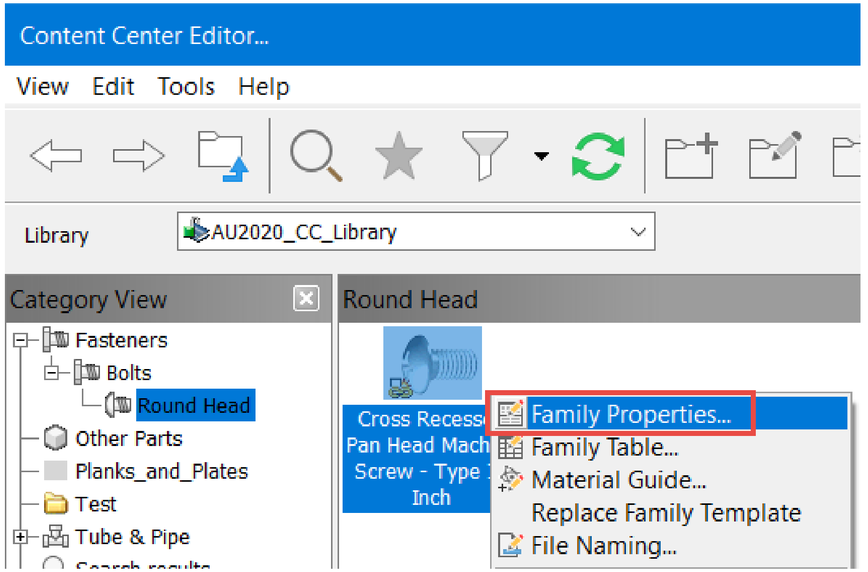
FAMILY MODEL TEMPLATE

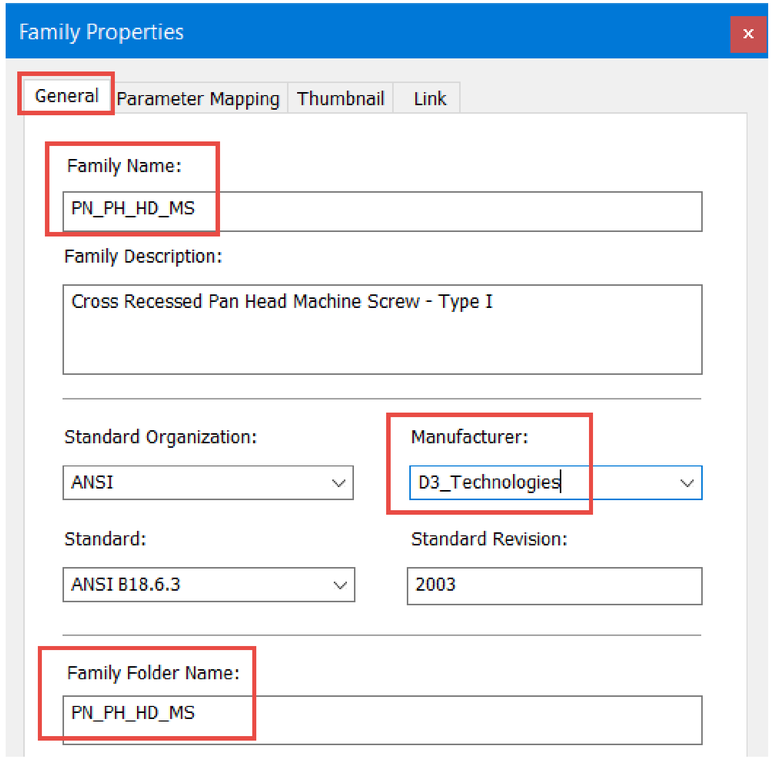
Each family is based on an actual Inventor part template, which can be modified if geometric changes or additional iProperties are required

Family Properties

These are properties that all members of a family share

- **Family Name**
  - This is the name that designers will use to search for the proper components
- **Family Folder Name**
  - This is where Inventor will store components generated from the CC
- **Manufacturer**
  - This is useful for CC-wide filters that streamline the component selection process

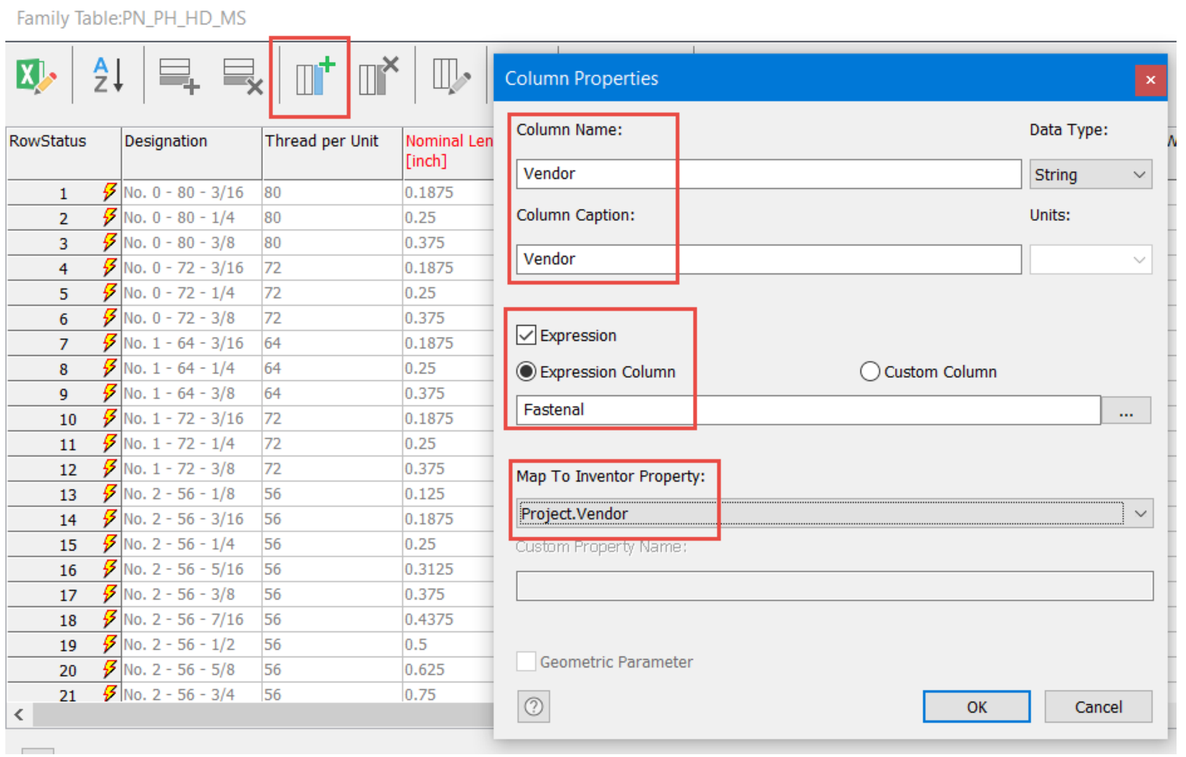


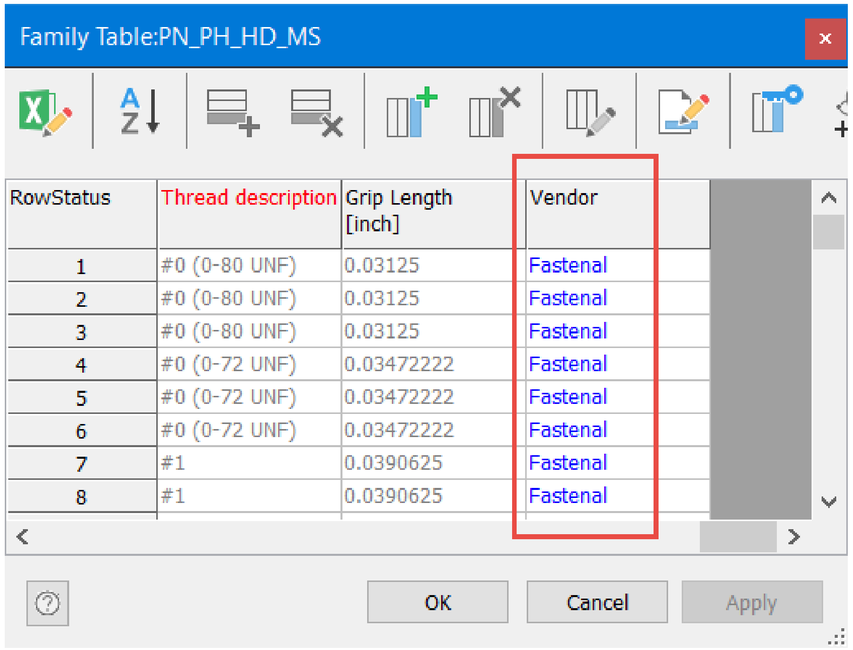


Family Table – Add Custom Columns

The family table is a large data base with row-upon-row of data. This data is generically provided from Autodesk, so customization is required. The first item is to create custom data columns modified in the CC

- **Manual Data Entry**
  - These data columns are generated inside of the family table and manually populated (or slightly automated with custom expressions)
  - Can be mapped to existing iProperties for use in assembly modeling and BOM

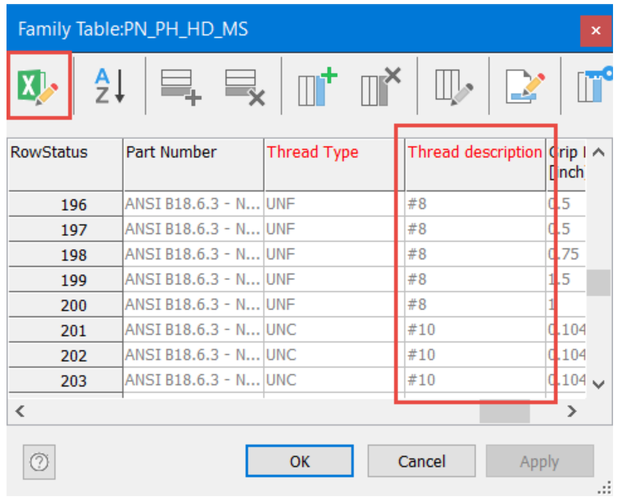


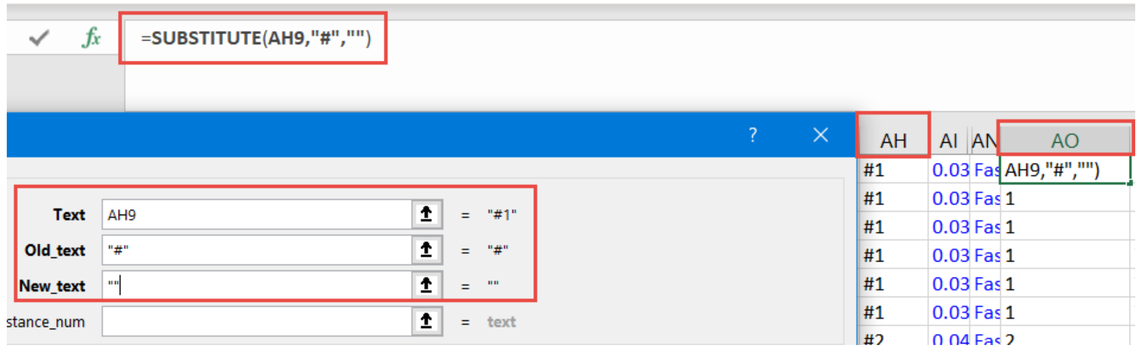


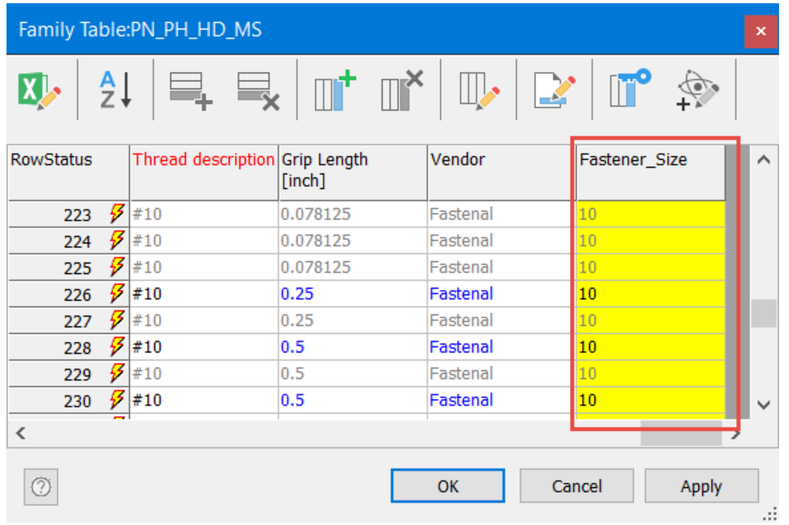
Family Table – Add Custom Columns (Cont.)

The family table is a large data base with row-upon-row of data. This data is generically provided from Autodesk, so customization is required. The second item is to create custom data columns that are modified in Excel

- **Generate the column**
  - This can be done in Excel or the family table
- **Utilize Excel for advanced data manipulation**
  - Note that since the family table is a database, any Excel functionality will be lost when the table is updated. The table data is correct, but the formulas are replaced with the resulting text



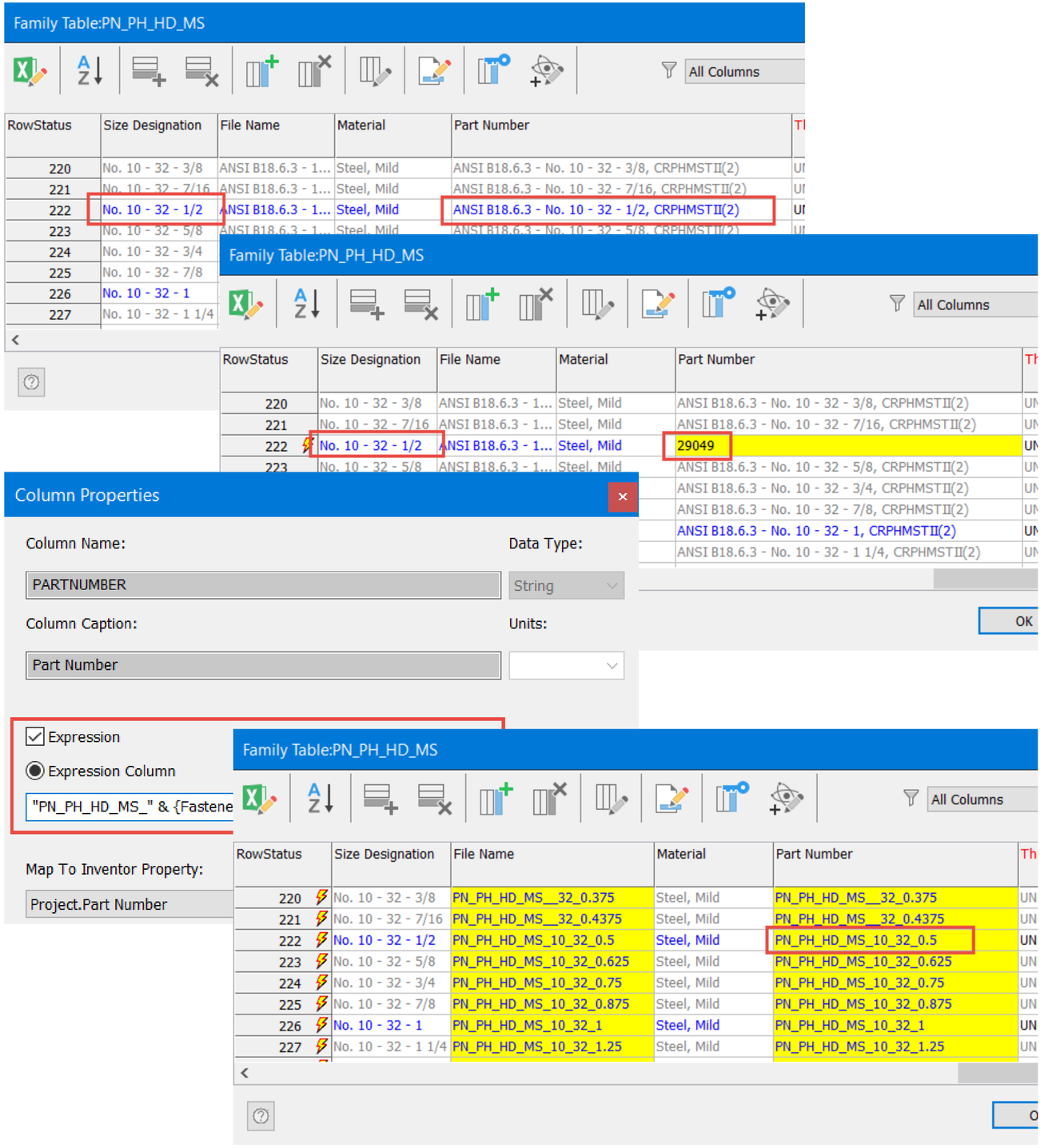




File Naming and Part Numbers

There are a lots of useful out-of-the-box families, but the File Names and Part Numbers do not align with any specific company's business processes

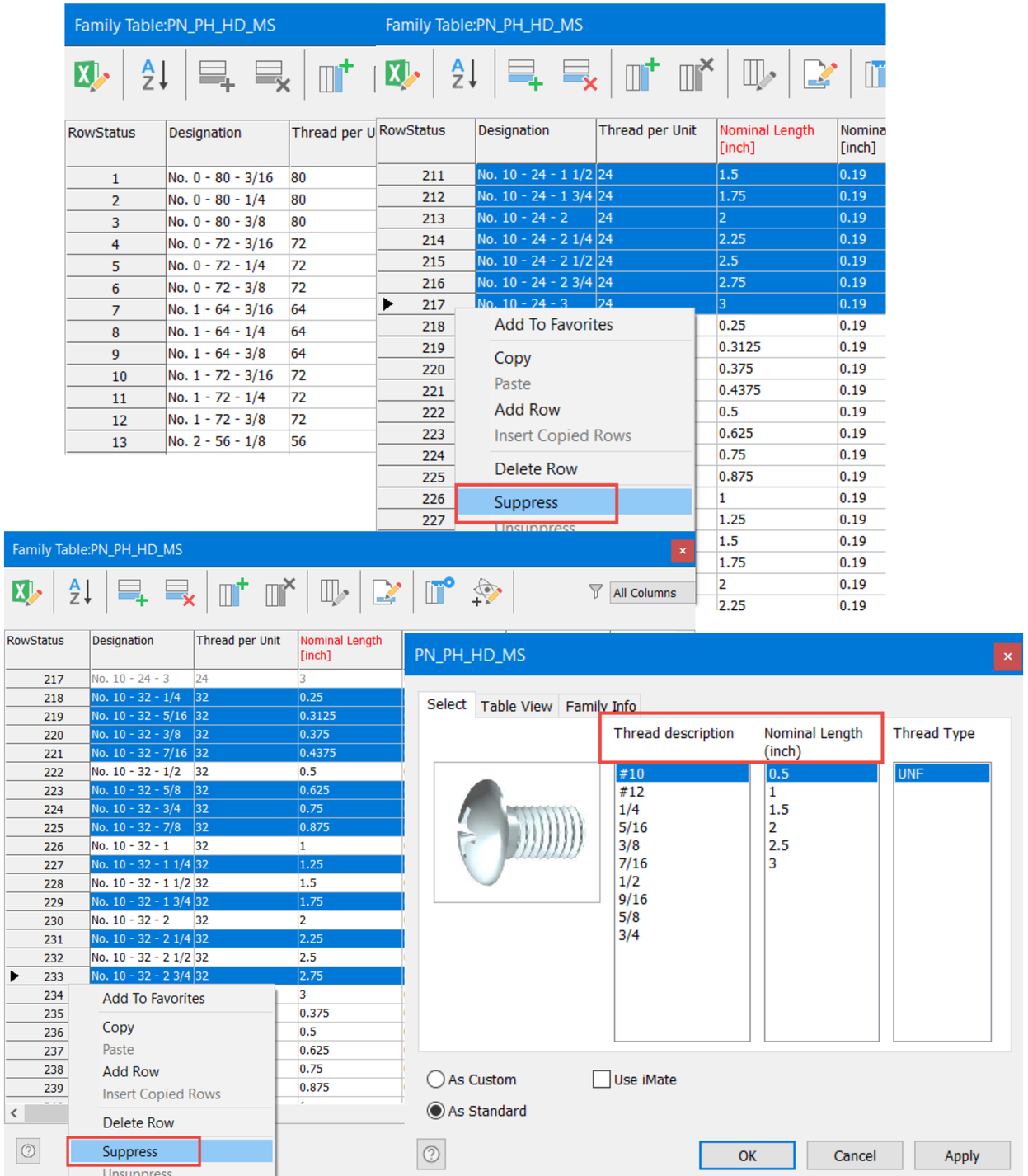
- **Manually Manipulate the Data**
  - File Names and Part Numbers can be keyed in manually
- **Utilize Custom Expressions**
  - Column data is driven via an expression combining text strings and additional column properties
- **Utilize Excel**
  - Excel formulas and CONCATENATE can be used, but will be replaced by resulting text



Pare Down Available Rows

In order to assist with lean manufacturing and design efforts, it is essential to stock and use standardized components. Editing the available data rows aids in this effort

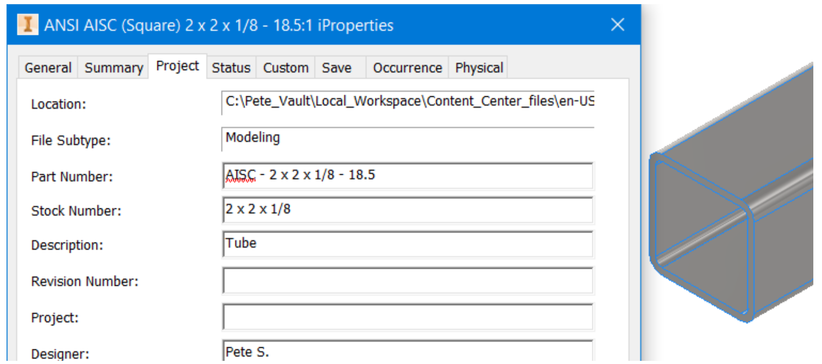
- **Remove Sizes Not Desired**
  - If the smallest fastener size is a #10, remove all #0 through #8 sizes
- **Remove Specific Versions Not Desired**
  - Specific sizes can be standardized by removing unnecessary rows, such as #10 x 1/4” long SMS
- **Delete vs Suppressing Rows**
  - Deleting is permanent and will require row creation if data is required in the future
  - Suppression preserves the row data, but data is hidden from the end designers

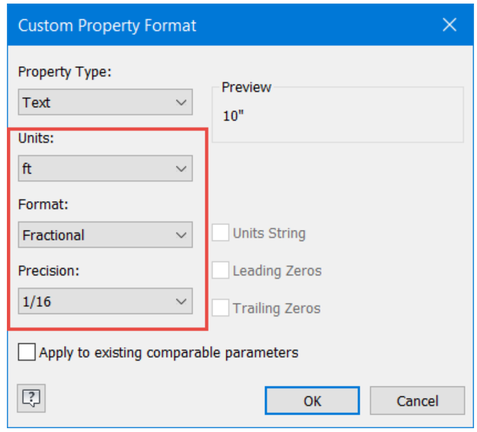


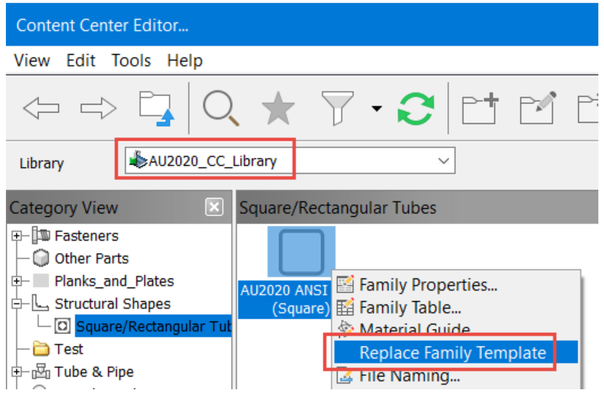
Replace the Family Model Template

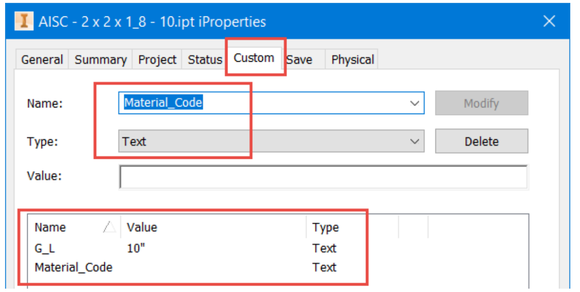
Every family is based upon an actual Inventor part model template, which defines the geometry and available meta data. This template must be replaced for geometric updates or meta data additions

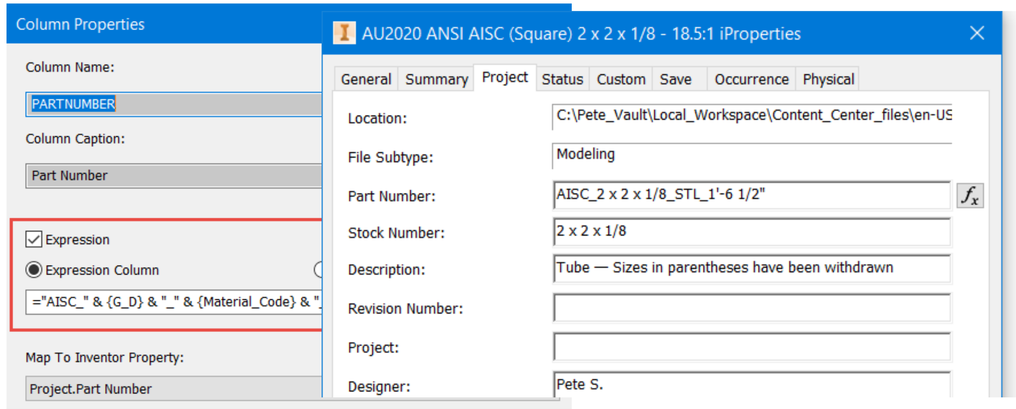
- **Geometric Updates**
  - Any geometric changes must be published via a family template replacement
- **Custom iProperties**
  - Custom iProperties must be added to the family template to be accessible to the family table
- **Meta Data Modifications**
  - Parameter and other updates must be published as a template replacement to be accessible by the table

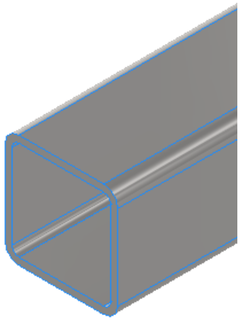












Publishing New CC Content

What Can be Published?

STANDALONE COMPONENTS

Unique components can be published to server specific purposes with new rows potentially added in the family table

IPARTS

For common groups of components or as an easier way of establishing key columns for the family table, an iPart is a great way to get started

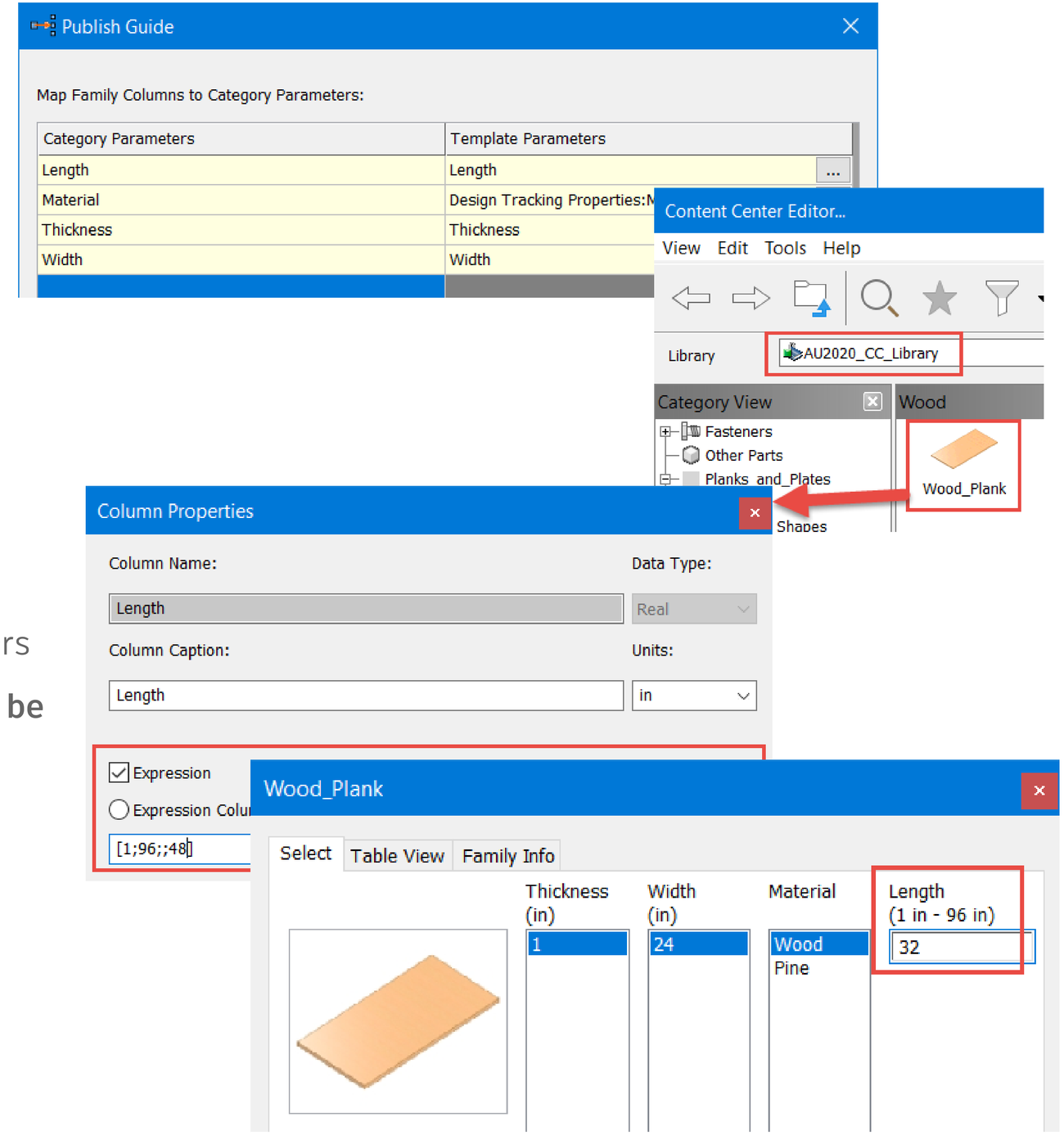
SPECIALTY AUTHORED CONTENT

When working to expand the content for use with the Design Accelerators, special features must be added to author the components for these unique situations

Standalone Components

These components are often unique or can be customized in the family table to handle the different size requirements

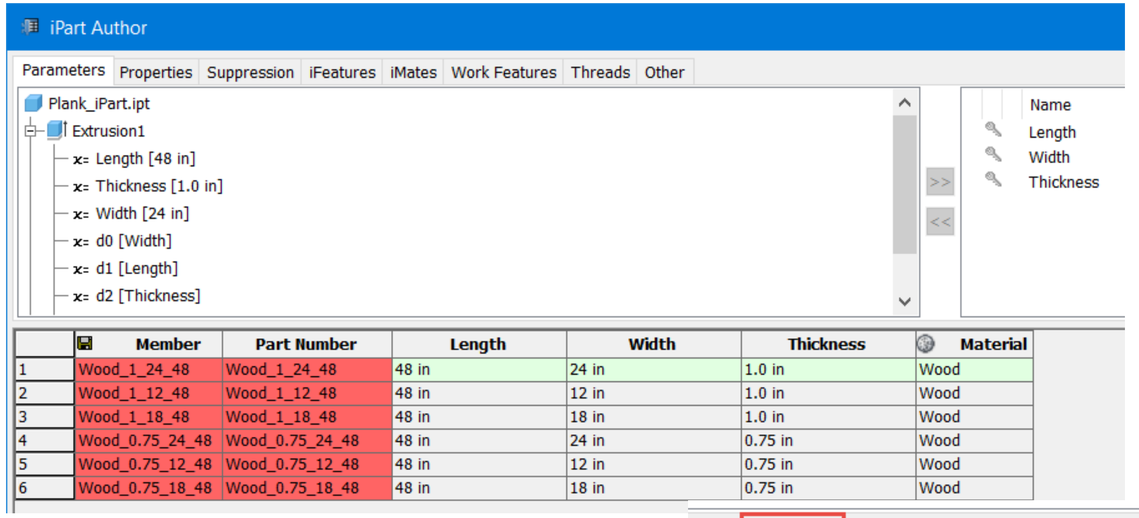
- **Key values are determined from the category properties**
  - Category properties are mapped to key parameters
- **Additional sizing and parameter customization can be added in the family table**
  - Adding a custom column expression allows designers to customize a component's size when placing from the CC



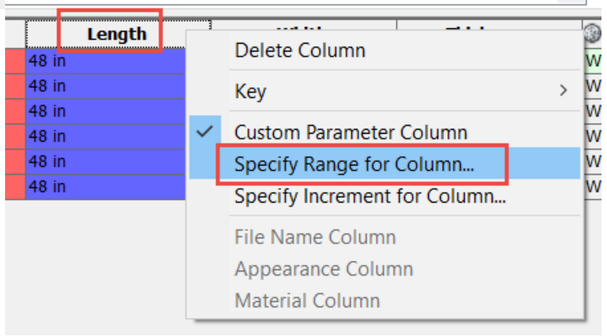
iPart Components

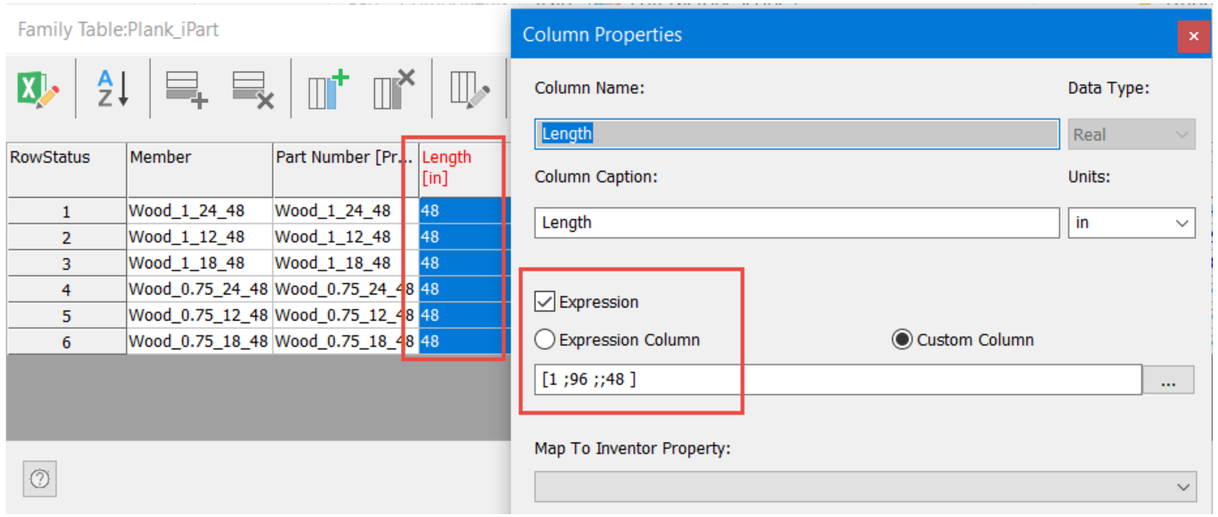
These components are usually part of a “family” with different sizes and configurations, which can be built ahead of time in the iPart table

- Category properties are mapped to the iPart table columns
- iPart table rows convert to CC family table rows
- Custom parameter columns in the iPart table automatically convert to custom column expressions in the family table



	Member	Part Number	Length	Width	Thickness	Material
1	Wood_1_24_48	Wood_1_24_48	48 in	24 in	1.0 in	Wood
2	Wood_1_12_48	Wood_1_12_48	48 in	12 in	1.0 in	Wood
3	Wood_1_18_48	Wood_1_18_48	48 in	18 in	1.0 in	Wood
4	Wood_0.75_24_48	Wood_0.75_24_48	48 in	24 in	0.75 in	Wood
5	Wood_0.75_12_48	Wood_0.75_12_48	48 in	12 in	0.75 in	Wood
6	Wood_0.75_18_48	Wood_0.75_18_48	48 in	18 in	0.75 in	Wood

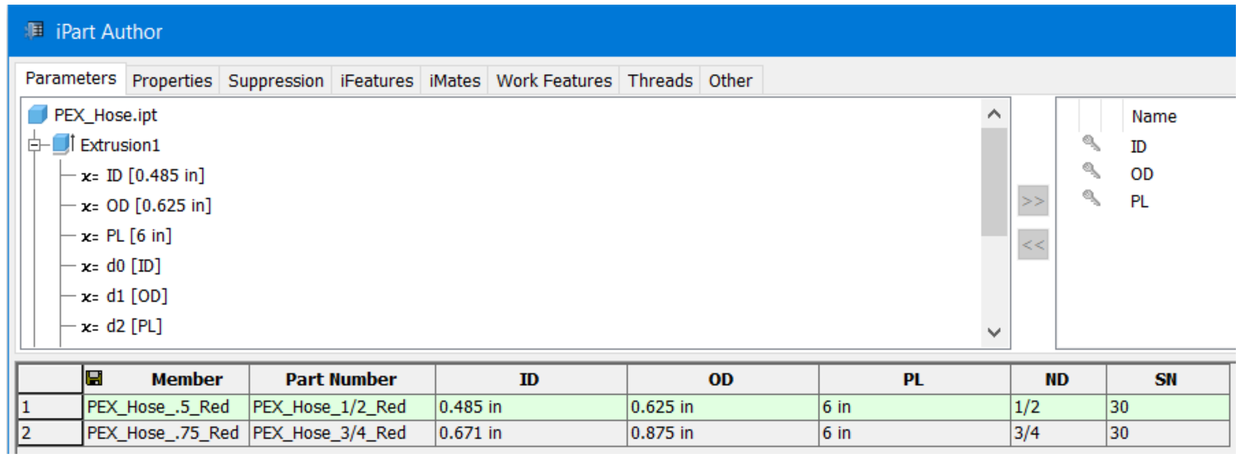




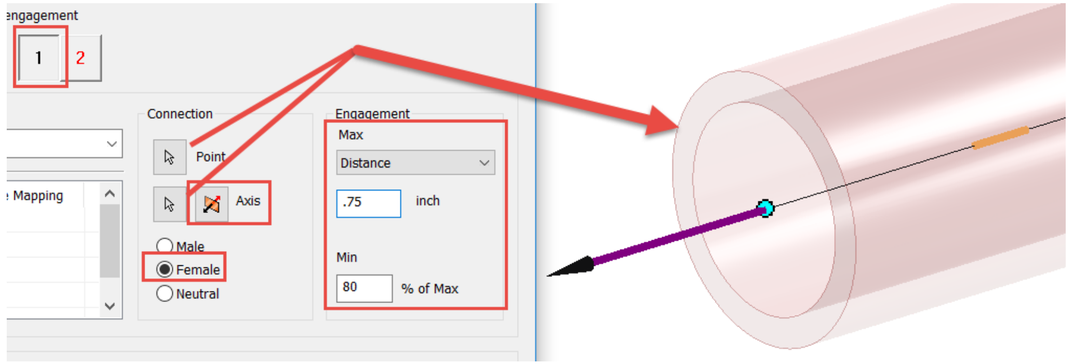
Specialty Authored Content

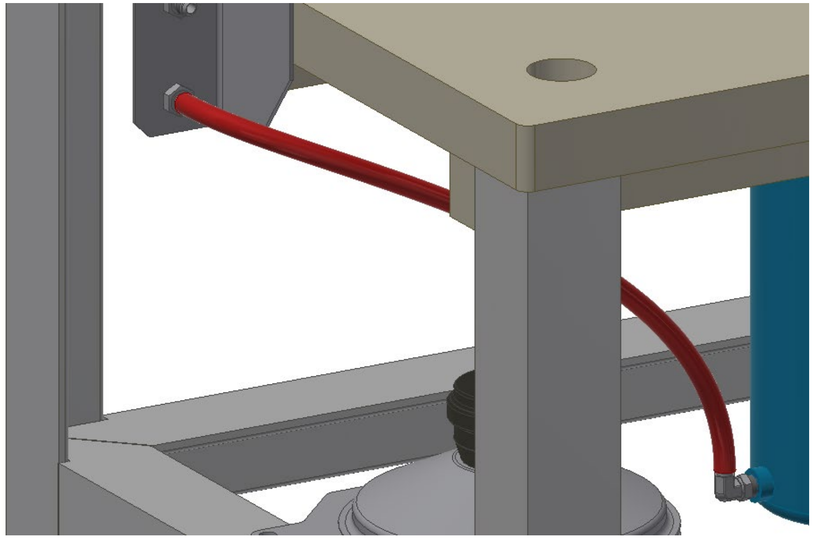
The Design Accelerators require certain characteristics for published components to enable the efficient functionality

- **Specific features must be authored for each component class**
  - Each CC category has unique requirements for the Design Accelerators
- **Additional Design Accelerator functionality may be required**
  - In order to utilize the newly published CC families, additional styles may be required, as in the Tube & Pipe environment

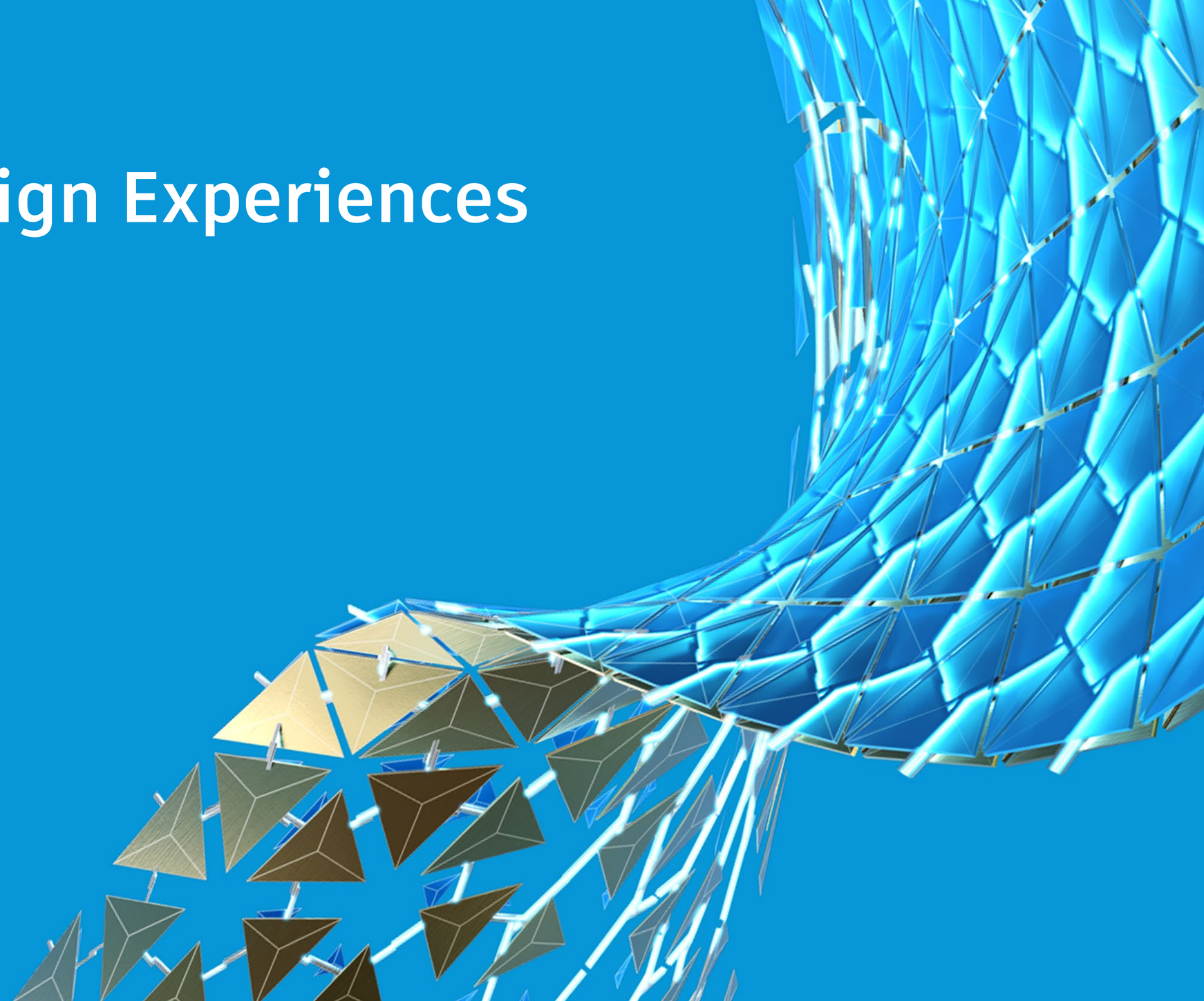


	Member	Part Number	ID	OD	PL	ND	SN
1	PEX_Hose_.5_Red	PEX_Hose_1/2_Red	0.485 in	0.625 in	6 in	1/2	30
2	PEX_Hose_.75_Red	PEX_Hose_3/4_Red	0.671 in	0.875 in	6 in	3/4	30





Improve Design Experiences



What Kind of Improvements?

CUSTOM COLUMNS

Some custom columns can be created to help clarify selection options or help guide designers to the proper selections

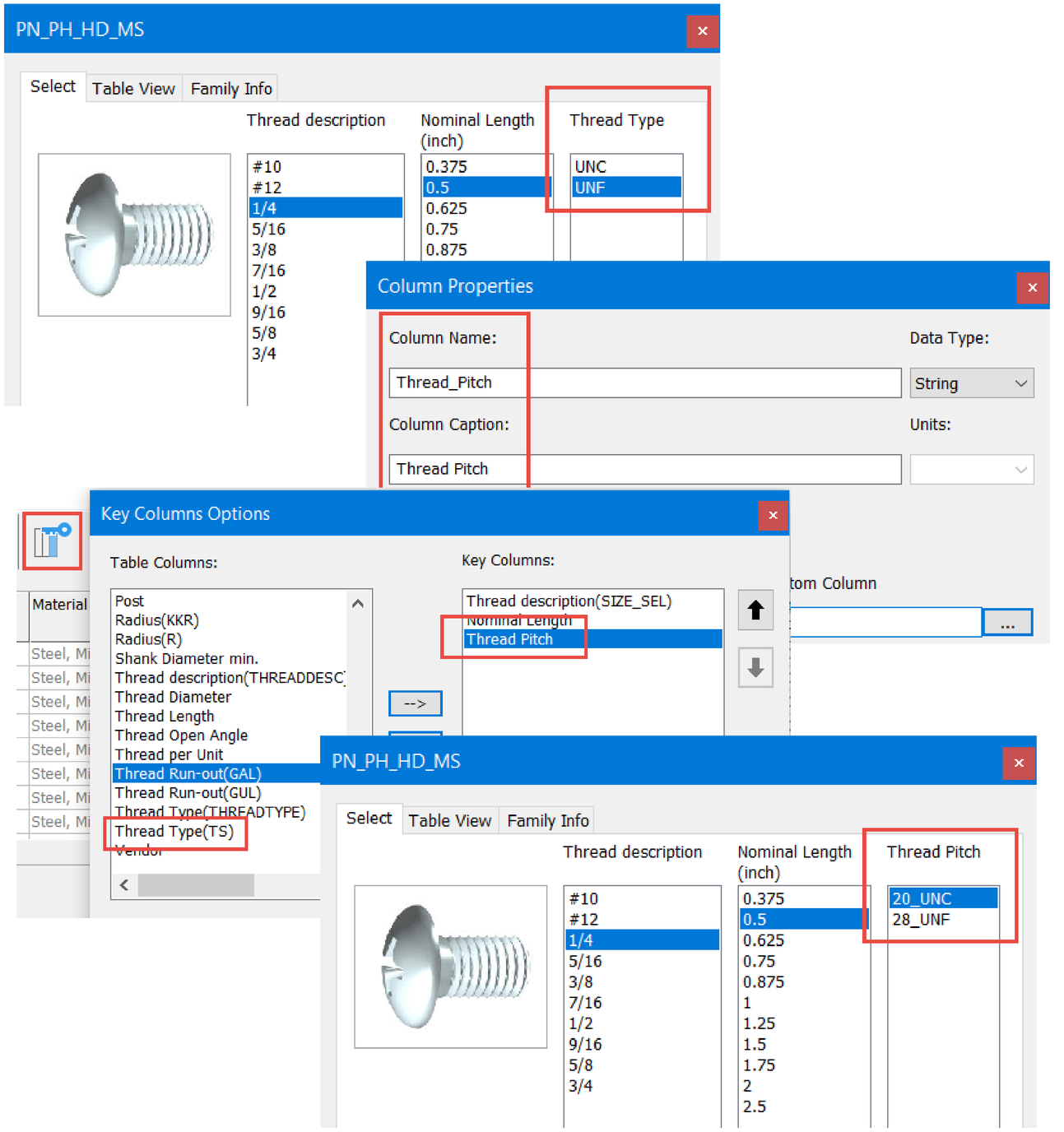
CUSTOM SELECTION FILTERS

By customizing the family properties of “Standard” and “Manufacturer” custom filters can be implemented to emphasize company approved CC families

Custom Columns

Custom columns can be added to guide designers to the proper component selections

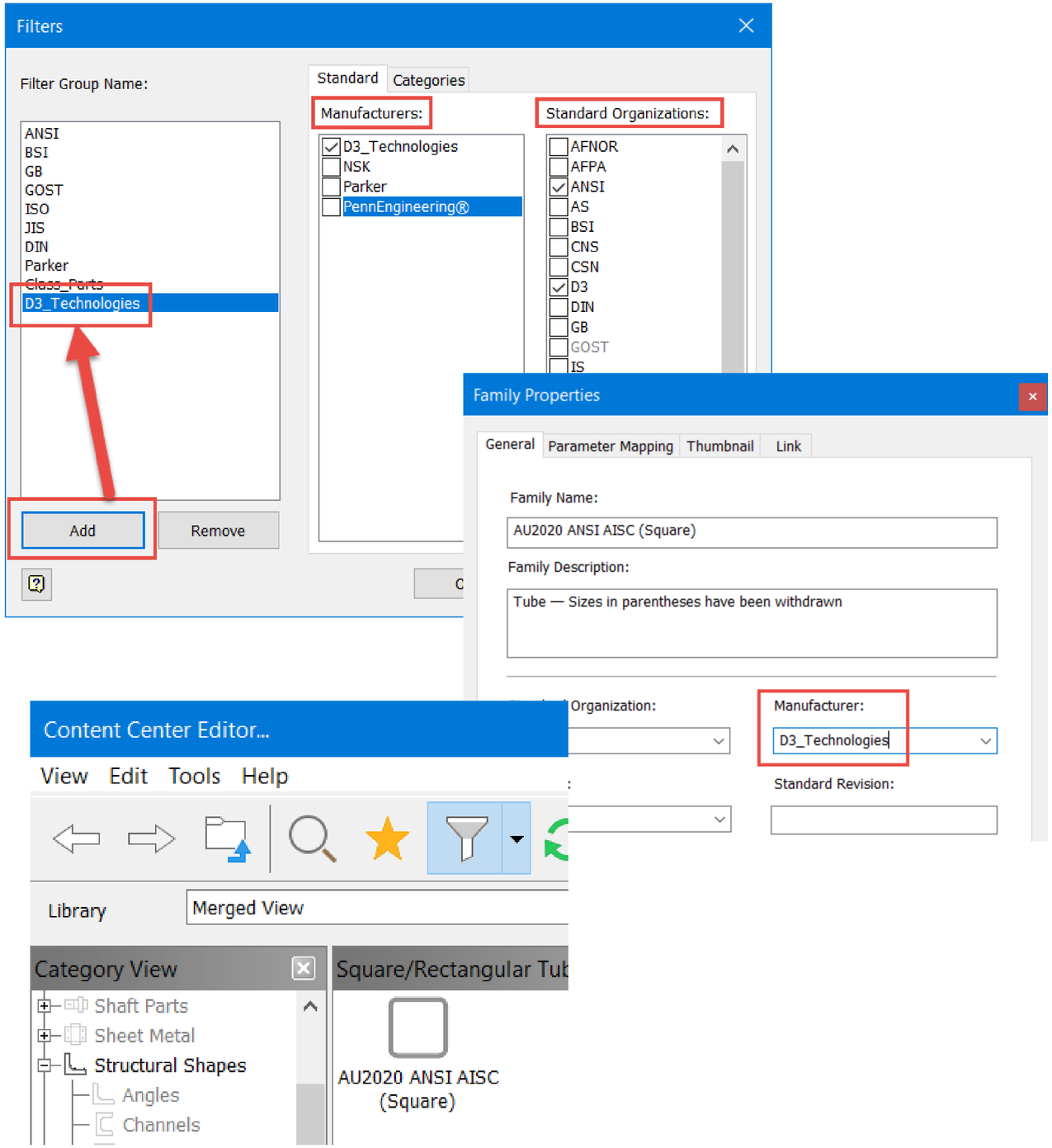
- **Rename Columns to Aid in Selection**
  - Sometimes column names are unclear, so a simple name change is sufficient
- **Create New Columns for Clarity**
  - Creating new columns that combine other column data is often the best solution



Custom Selection Filters

Custom filters can be implemented to highlight company approved CC families

- **Modify Family Properties “Standard” and / or “Manufacturer**
  - Utilize the company name in the “Manufacturer” family property, and the “Standard” property when necessary
- **Create a custom filter based on the “Manufacturer” and “Standard” properties**
  - These filters help streamline the selection process



Special Thanks!

- God for this wonderful opportunity and literally every breath I take
- Scott Dibben for allowing me to explore my zany ideas at work
- Dan Hunsucker for helping me learn more about the CC over the years
- My customers who ask so many great questions and help drive much of my research
- All of you for being great sports and participating in this rather unique AU experience