MFG468330

I Want It My Way: Customizing the Inventor Content Center

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Learning Objectives

- Set the stage for customization with complete control over Content Center structures and properties.
- Utilize efficient techniques to use customize table data and pare down parts lists for lean design.
- Publish your own family tables with components your company specifically uses.
- Learn how to create custom filters and tailor selection options to improve end-user experiences and efficiency.

Description

The Inventor Content Center is a powerful tool that enables centralized storage and management of standard parts within a company, as well as providing a springboard to efficient design tools such as Frame Generator, Bolted Connections, and Tube and Pipe. However, to make the tool as flexible as possible, the Content Center uses highly technical names for components (ANSI, and so on). Perhaps you like to label your pan head machine screws as “ANSI.B18.6.3…” but that doesn’t work for many others. Additionally, while the out-of-the-box Content Center is extensive, it does not contain any of our specific components. So, whether you decide to use a vendor’s or your own part numbers, or you want to utilize existing data or add your own, this is the class for you. In this course, we’ll cover how to build custom Content Center structure, how to modify existing data or publish our own data, and how to simplify the end user’s experience and ensure data serves downstream processes. In every way, we will make the Content Center our own!

Speaker(s)

I am an implementation consultant with D3 Technologies, a Platinum Autodesk Partner and Authorized Training Center, based out of our Minneapolis office. I focus primarily on the following areas engineering design and manufacturability, design automation and configuration, process efficiency and manufacturing layouts. Typically, I will partner with clients to perform an assessment of a design or process, determine some improvements, propose a path forward and develop content / mentor users to implement the project. I'm also an Autodesk Certified Instructor and professionally certified in AutoCAD, Inventor Professional and Fusion 360. I frequent the Inventor and Factory Design Forums / Idea Stations, so if you ever have a question, please just ask! Privileged to have attended and taught at Autodesk University; love sharing the crazy stuff I work on and always looking to learn more from all the excellent sessions!

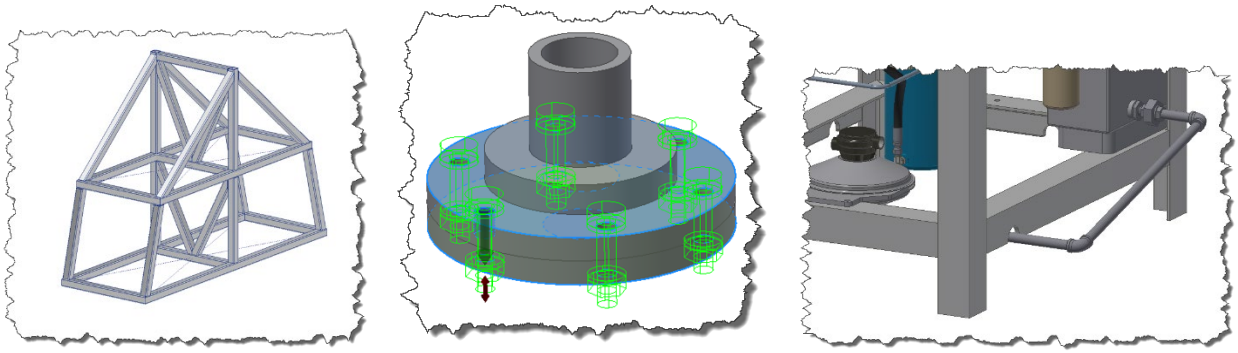
Table of Contents

The Goal

Why is this topic even important?

The Content Center (referred to as **CC** from now on) is a vast repository of parts that can be used in virtually any design scenario. These parts range from generic, everyday parts like fasteners to highly specialized piping equipment. Since there can be such a wide array of different components, Content Center provides huge advantages since it is a centralized location to store and utilize all these components, which reduces the maintenance workload and ensures that all designers are pulling the correct parts.

Besides these general advantages to using the CC, there are specific modules within Inventor that utilize CC components. These design accelerators automate the creation of content, allowing designers to focus on the more custom portions of a design. Some examples include:



DESIGN ACCELERATOR EXAMPLES: FRAME GENERATOR, BOLTED CONNECTIONS AND TUBE & PIPE RUNS

While the out-of-the-box CC is extremely useful, to maximize the benefits, we MUST make the CC our own! Customizing the CC unlocks the full potential to improve our design efficiency as well as downstream business processes.

What are we going to cover?

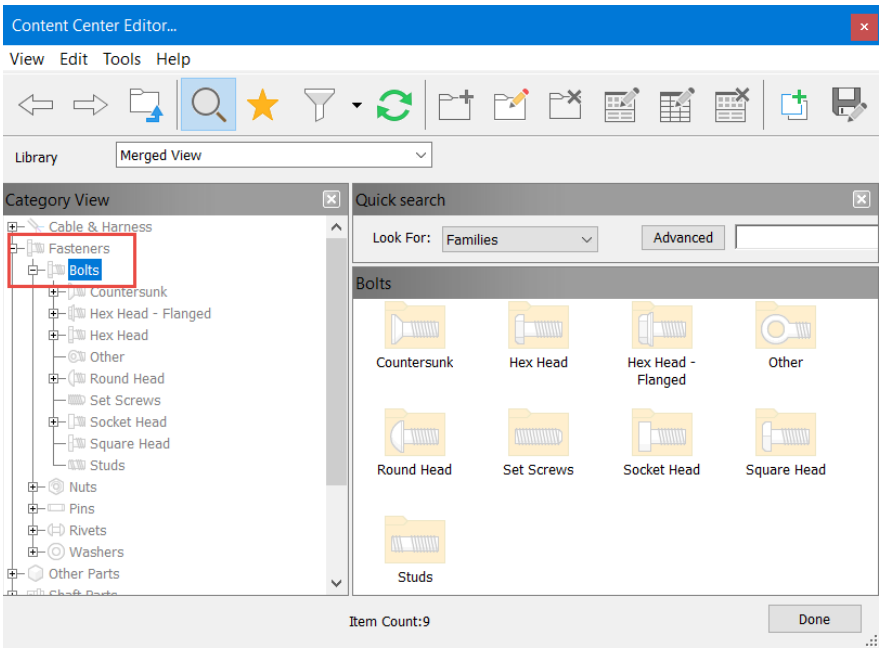
CC is a vast tool, so to customize it to our needs, we're going to focus in on the following areas:

- Controlling the structure of the Content Center
- Refining and modifying the family table data to better suit our needs
- Adding new Content Center families for company specific designs
- Improving the designer's user experience by customizing selection choices

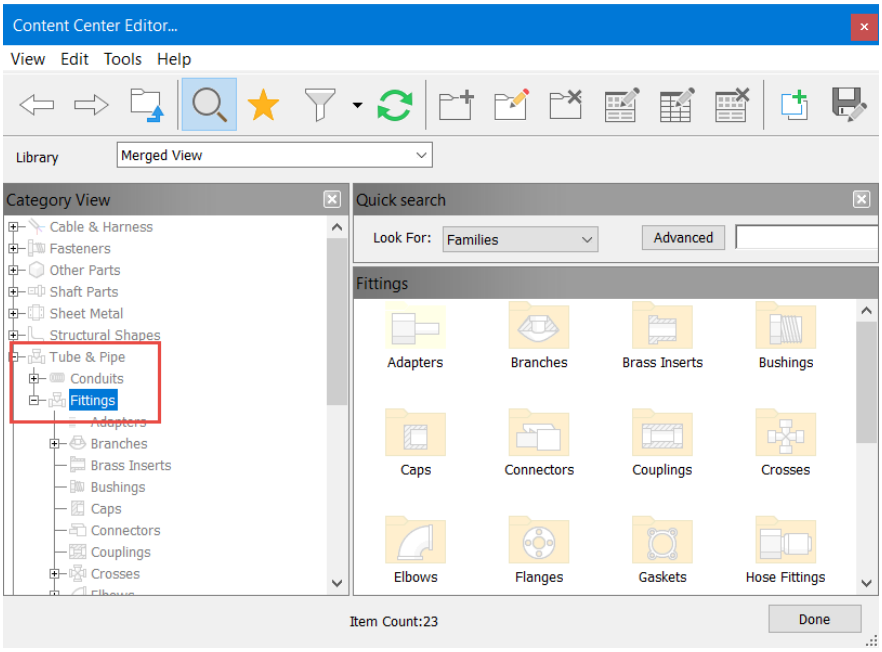
By working systematically through the customization of the CC, we can quickly bring changes online and ensure the desired results.

Controlling Content Center structure

Content Center structure is very important because each design accelerator requires the components to be stored in a certain location. While the overall structure is set for these categories, opportunities exist to customize the structure to better accomplish our design goals. Some examples of CC Structure are shown below.



CC STRUCTURE EXAMPLE SHOWING THE FASTENERS CATEGORY AND ASSORTED SUB-CATEGORIES



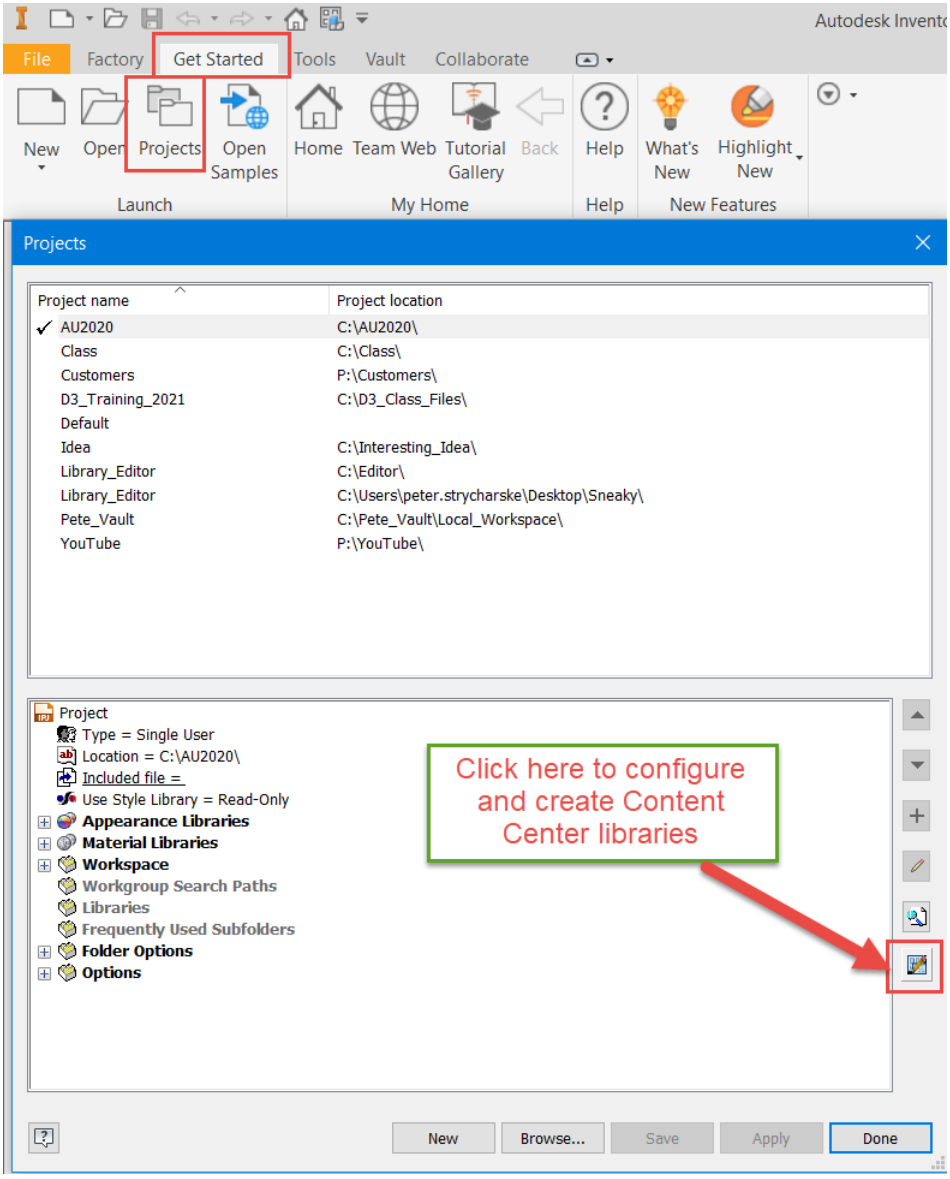
CC STRUCTURE EXAMPLE SHOWING THE TUBE & PIPE AND FITTINGS SUB-CATEGORY

Create a custom Content Center library

To customize the Content Center, either to create new structures, modify existing libraries or publish new content, a custom library must be created. There are a couple of different ways this can be accomplished, depending on whether one is using Vault or not. If working with a network drive or on your own computer, the creation of the custom library can be accomplished in the Projects tool. If using Vault, then the Vault admin must create the library in the Autodesk Data Management Server (ADMS) Console.

Create a Desktop Content (network or single computer) library

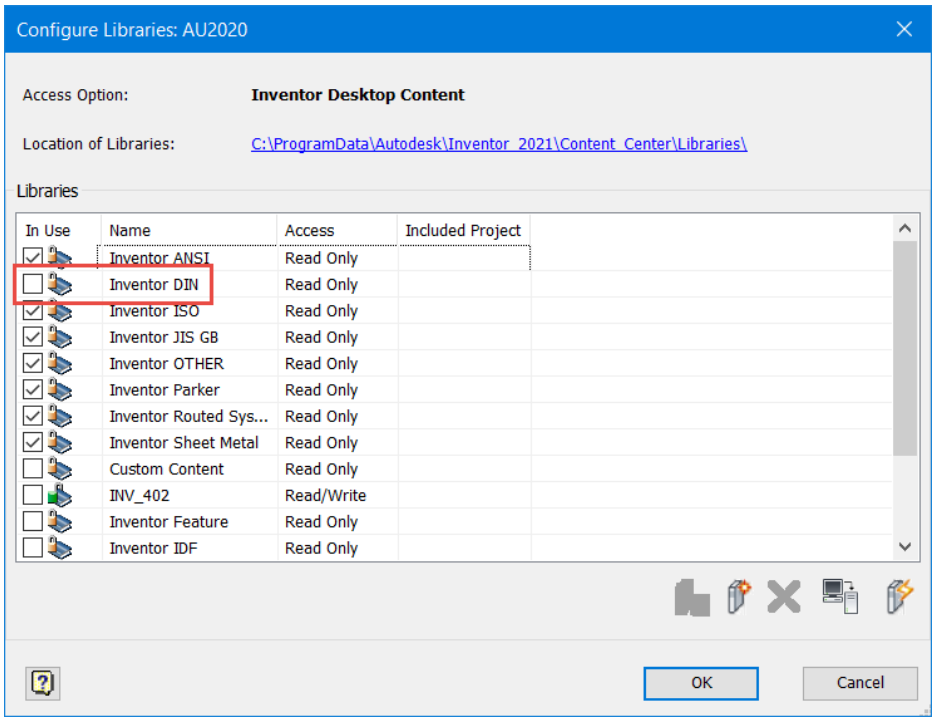
Custom libraries created on networks or on a single computer can be created within the Projects tool inside Inventor.



WITHIN THE PROJECTS TOOL, THE CC LIBRARIES CAN BE CONFIGURED OR CREATED

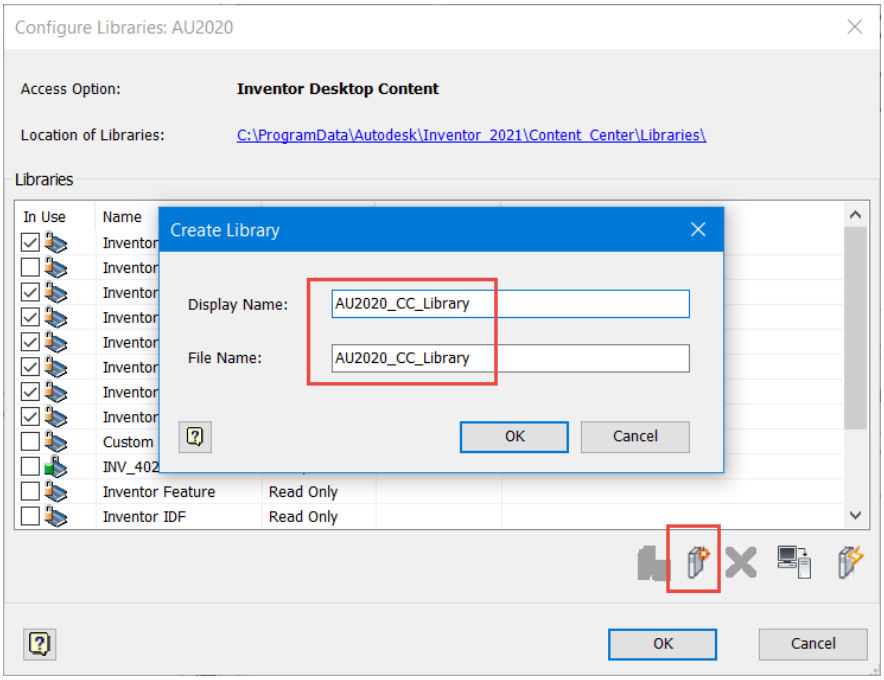
The Content Center Library Configurator tool allows us to determine which libraries are active for use in this project file. Therefore, if your team doesn't use the DIN library, then simply uncheck the box next to the DIN library and it won't be available when placing components from the CC.

Important Note: this library selection process works whether the libraries are located on the network, on a local computer or in the Vault.

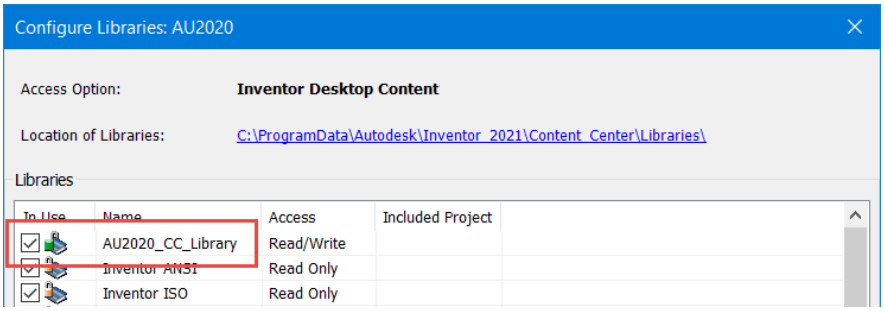


USE THE CC LIBRARY CONFIGURATOR TO CONTROL WHICH LIBRARIES ARE AVAILABLE WHEN PLACING CC PARTS

Custom CC libraries can also be created within the CC Library Configurator, which will set the stage for the customizations that will be the primary focus for the rest of this presentation.



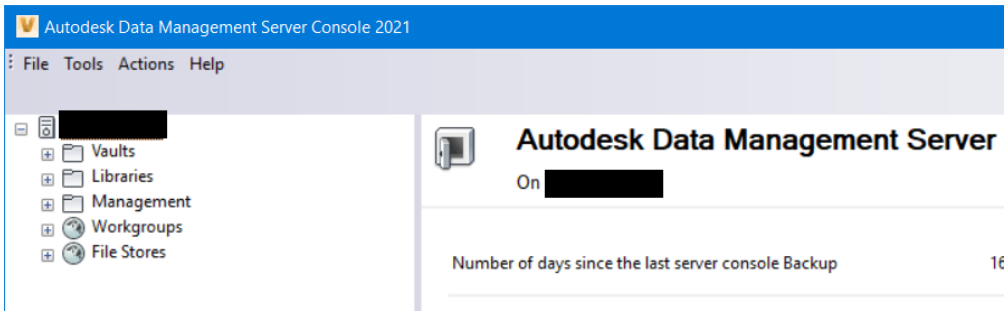
CREATE A CUSTOM LIBRARY FROM THE CC LIBRARY CONFIGURATOR



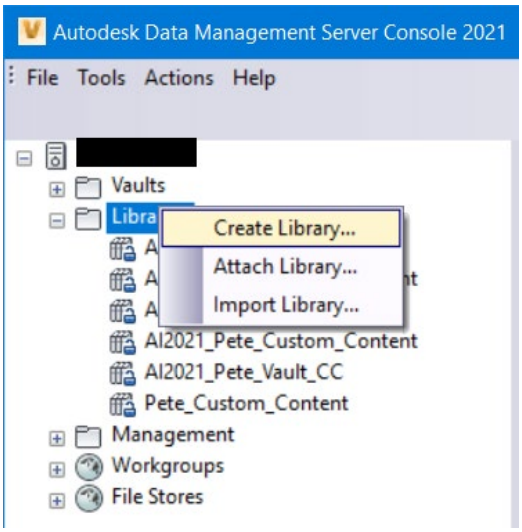
THE CUSTOM LIBRARY HAS BEEN ADDED TO THE ROSTER AND CAN BE DEACTIVATED LIKE ANY OTHER CC LIBRARY

Create a custom CC library in Vault

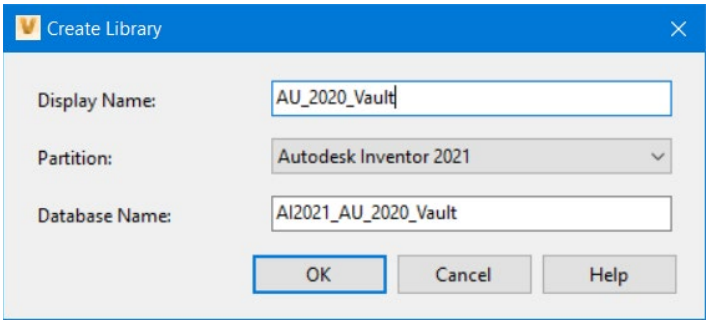
To create a custom library for use in Vault, the Autodesk Data Management Server (ADMS) Console must be utilized. Only the Vault admins can accomplish this, and this process must be completed on the server.



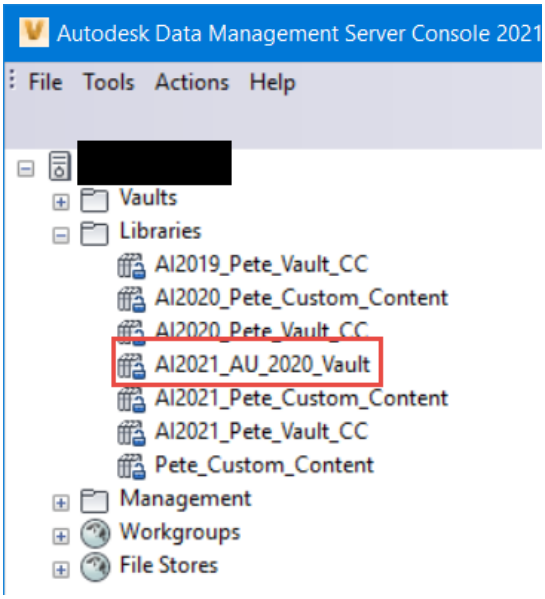
LAUNCH THE ADMS CONSOLE TO ACCESS THE VAULT SERVER MANAGEMENT TOOLS



RIGHT CLICK ON THE "LIBRARIES" NODE AND CREATE A NEW LIBRARY



NAME THE LIBRARY AND VAULT WILL STORE IT IN THE PROPER PARTITION

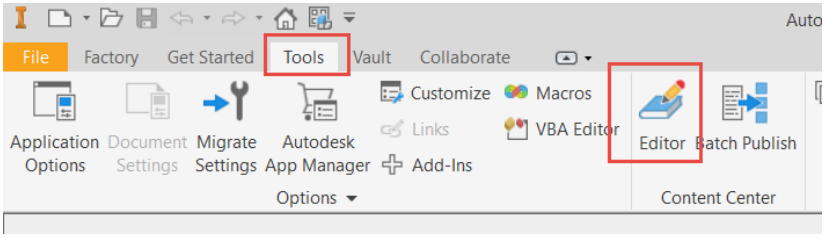


THE RESULTING CUSTOM LIBRARY HAS BEEN ADDED TO THE VAULT ROSTER

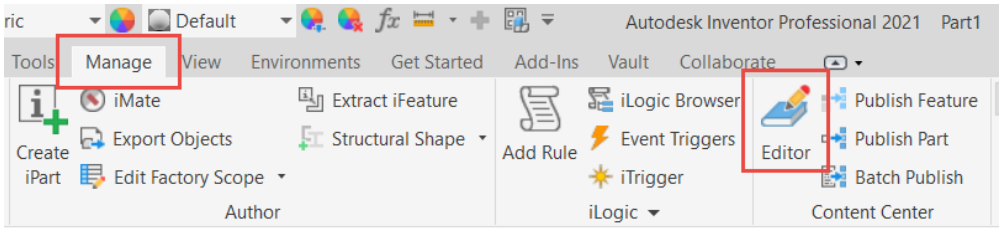
Copying an existing family

Copying an existing family is a great way to get started with a custom CC category structure, because when a family is copied, the structure is copied as well. Simply choose the family you wish to modify later and choose the **Copy To** option to create a linked family copy, along with the corresponding structure, to your custom CC library.

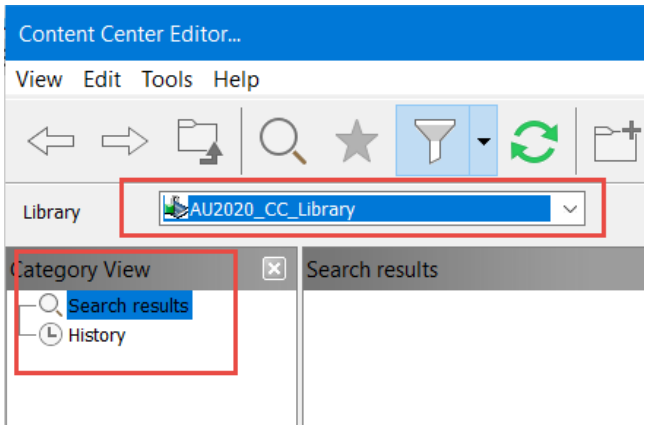
Important Note: You can choose the **Save Copy As** option to create an independent, non-linked family copy to your custom library. This should be done if both libraries must be visible for end users and you do not wish to link the families in any way.



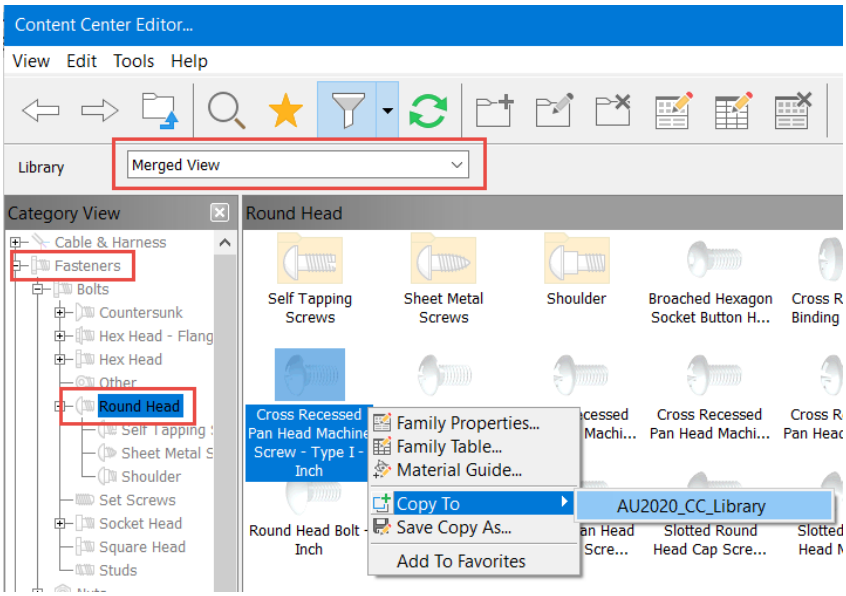
IF NO FILES ARE OPEN, LAUNCH THE CC EDITOR FROM THE TOOLS TAB



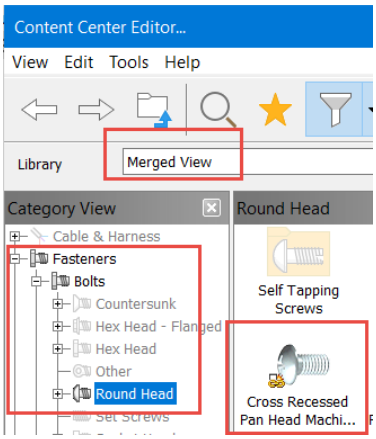
IF THERE ARE OPEN FILES, LAUNCH THE CC EDITOR FROM THE MANAGE TAB



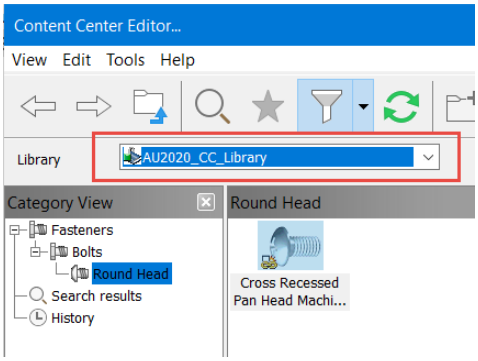
TOGGLE THE ACTIVE LIBRARY TO THE CUSTOM CC LIBRARY AND NOTE THERE IS NO FILE STRUCTURE



*SWITCH TO "MERGED VIEW", NAVIGATE TO AND RIGHT-CLICK ON THE FAMILY AND USE THE **COPY TO** OPTION*



IN "MERGED VIEW" THE FAMILY HAS BEEN COPIED AND CERTAIN CATEGORIES ARE HIGHLIGHTED AT THE LEFT

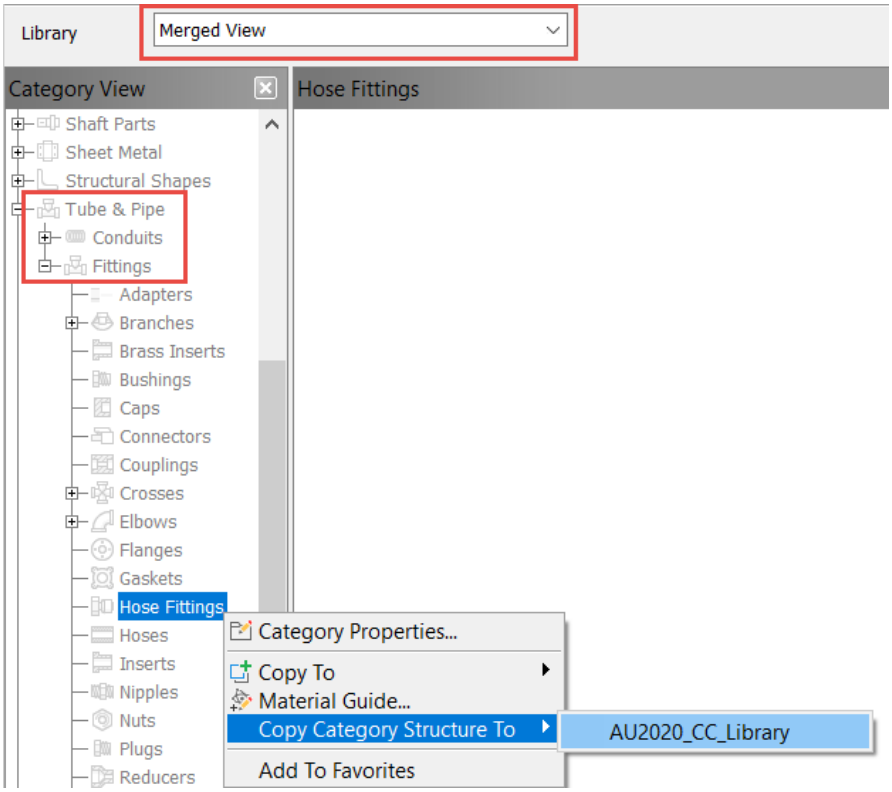


IN THE ACTIVE LIBRARY VIEW THE FAMILY AND STRUCTURE HAVE BOTH BEEN COPIED

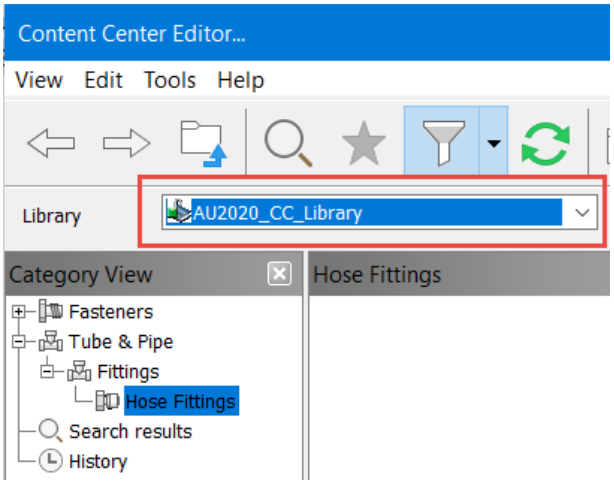
By copying the family, we set the stage for further structure customization, as well as family editing later one.

Copying structure only and adding custom sub-categories

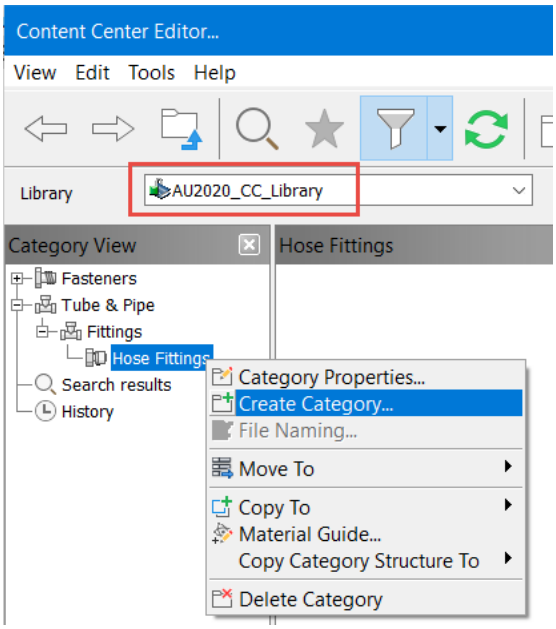
Copying families is the right approach if we wish to editing existing family tables, but if we only wish to publish our own content, then the category structure itself can be copied to our custom library and modified as desired.



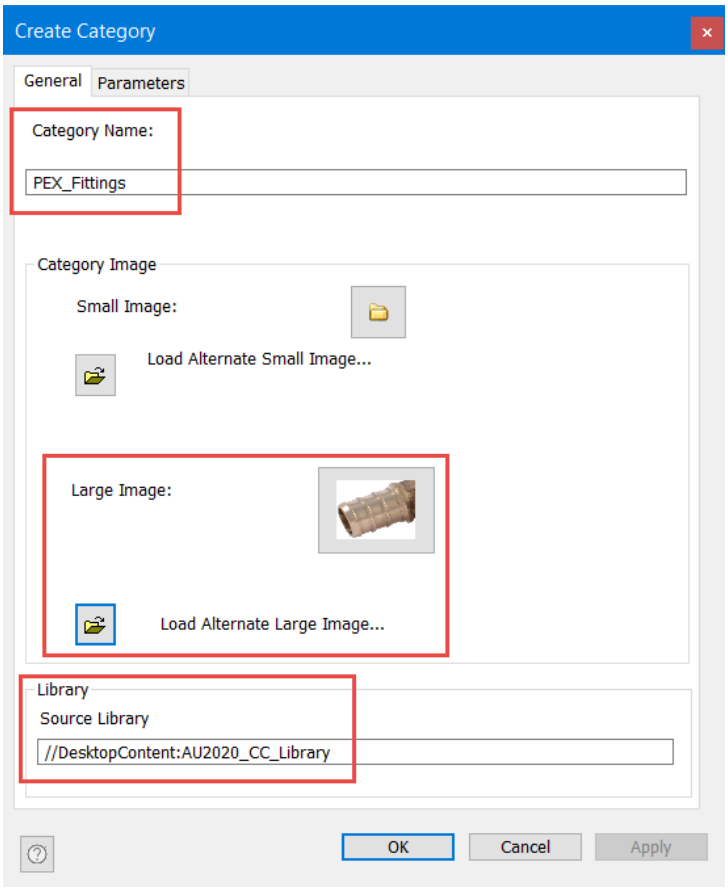
*IN MERGED VIEW, NAVIGATE TO AND RIGHT CLICK ON THE CATEGORY AND USE **COPY CATEGORY STRUCTURE TO** TO COPY THE STRUCTURE TO THE CUSTOM CC LIBRARY*



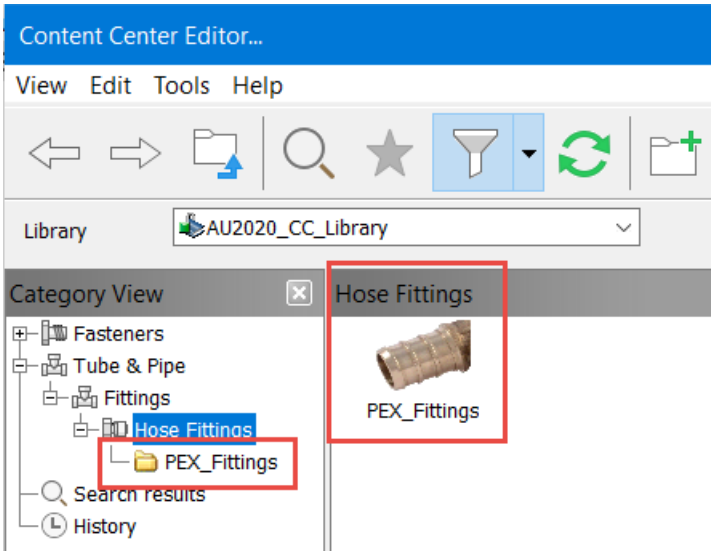
THE ENTIRE STRUCTURE PATH HAS BEEN COPIED TO THE CUSTOM LIBRARY



*IN THE CUSTOM CC LIBRARY (REQUIRED) RIGHT CLICK ON THE DESIRED STRUCTURE LEVEL AND **CREATE CATEGORY***



NAME THE CATEGORY AND LOAD FOLDER IMAGES, IF DESIRED



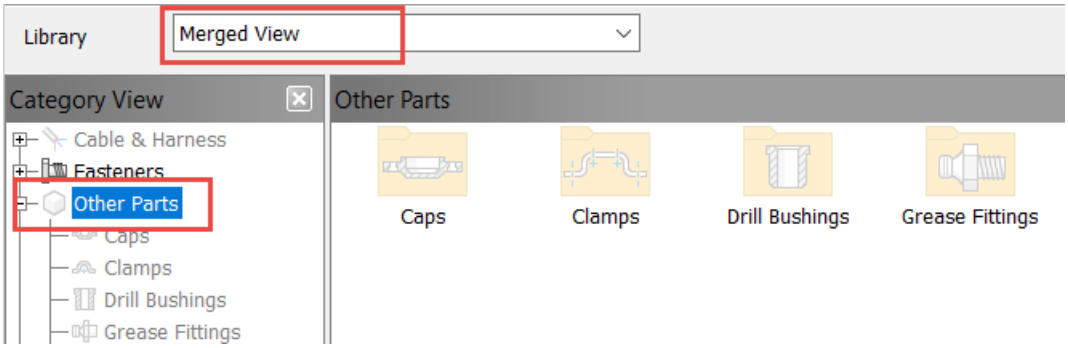
THE CATEGORY RESULTS WITH SMALL IMAGE IN THE CATEGORY VIEW AND THE LARGE IMAGE IN THE MAIN VIEW

The folder images can come from anywhere, 3D CAD models, photos off the web (verify copyright protection, of course), etc. The small image is used for the "Category View" at the left and the large image is used for the "Main View" at the right. This custom sub-category will be used to publish our own PEX fittings to be used with Tube & Pipe designs.

Create new top-level categories

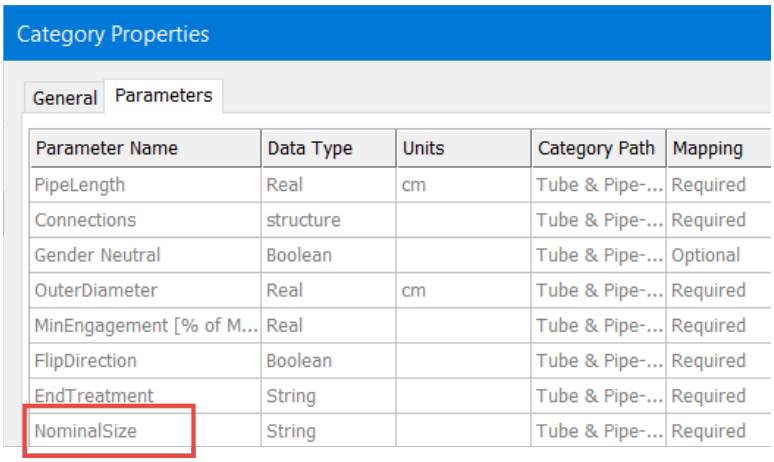
If you're planning on using any of the Design Accelerators (Bolted Connection, Frame Generator, Tube & Pipe, etc.) then you should either copy families or the existing structure when customizing the Content Center. However, if you are truly creating something new, that isn't going to be used in a Design Accelerator, then there are two options.

First, one can create any required sub-categories in the "Other Parts" category. The "Other Parts" category serves as a catch all for CC storage. Parts published here have no requirements and so pretty much anything can be placed in this location. For example, piping components require the "ND" parameter for nominal diameter, so parts without this property cannot be published to the "Tube & Pipe" category.

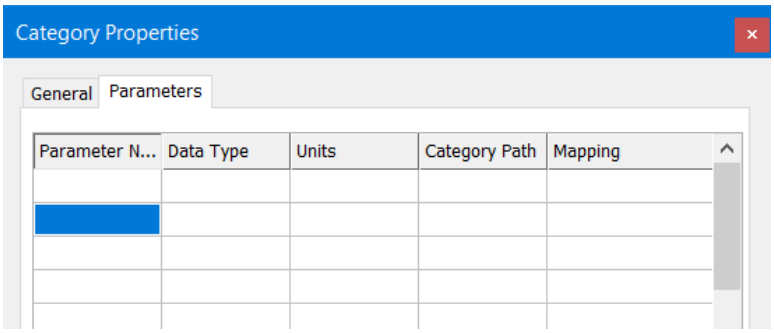


OTHER PARTS CATEGORY WITH MISCELLANEOUS COMPONENTS STORED WITHIN

For example, note the difference between the category parameters for “Tube & Pipe – Conduits” and the “Other Parts”. If you’re unfamiliar with category parameters, these are data requirements to publish content into these categories. For example, if the “ND” or nominal diameter is missing from a pipe iPart that you wish to publish to “Tube & Pipe – Conduits” then you will not be able to publish that component. We’ll investigate category parameters in more detail shortly, when we create a new category.

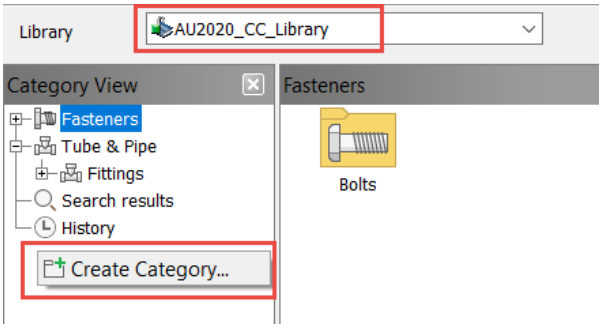


A VIEW OF THE CATEGORY PARAMETERS FOR THE “TUBE & PIPE – CONDUITS”

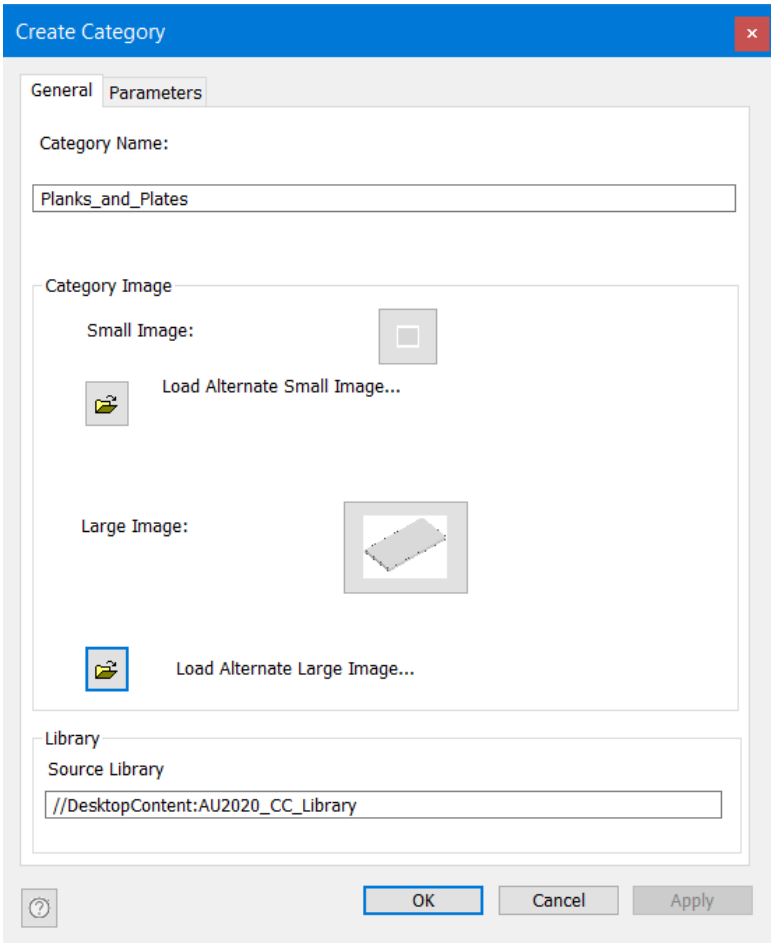


A VIEW OF THE CATEGORY PARAMETERS FOR THE “OTHER PARTS”

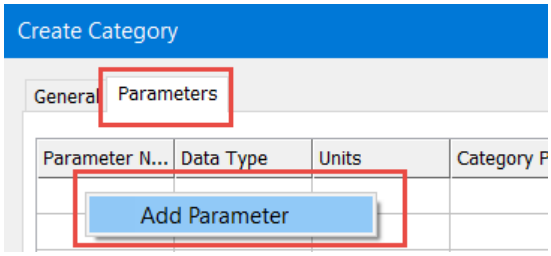
Another approach is to create a new category from scratch, which will give us the ultimate flexibility to configure the CC as desired. We can specify our own structure as well at control which parameters are required for publishing content. Please see the following example.



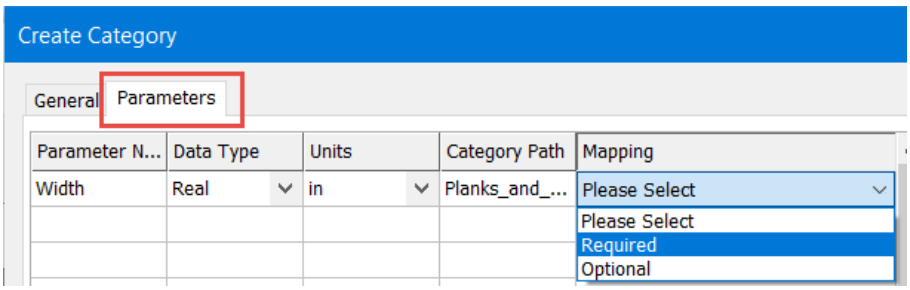
IN YOUR CUSTOM LIBRARY, RIGHT-CLICK ANYWHERE BELOW “HISTORY” TO CREATE A NEW CATEGORY



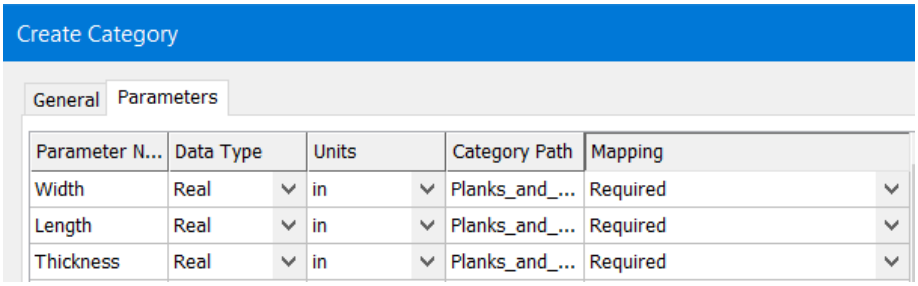
NAME AND APPLY LARGE & SMALL IMAGES (OPTIONAL)



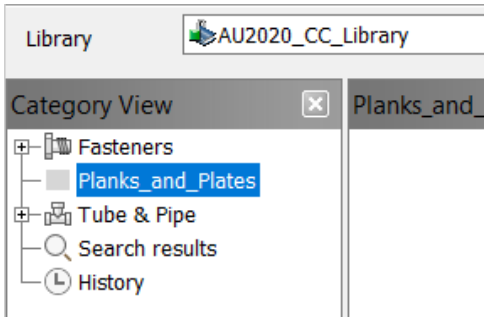
SWITCH TO THE PARAMETERS TABLE AND RIGHT-CLICK IN THE TABLE TO ADD A PARAMETER



NAME AND CONFIGURE THE PARAMETER. REQUIRED PARAMETERS MUST BE PRESENT IN A PART TO BE PUBLISHED

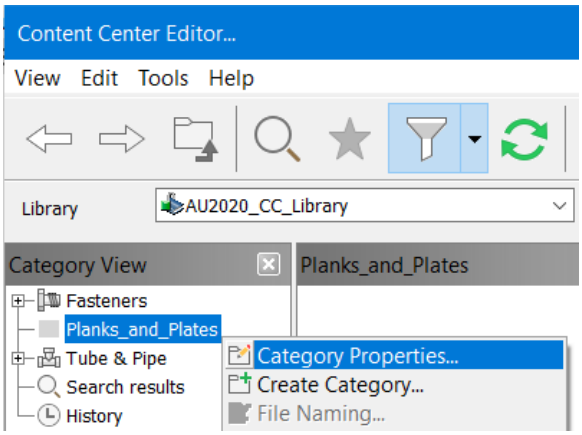


CREATE ALL DESIRED PARAMETERS

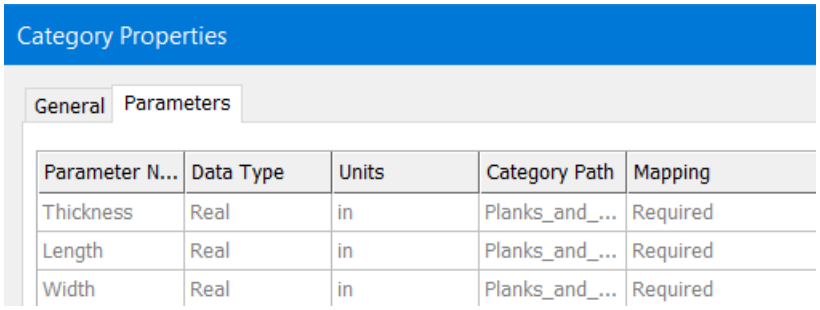


THE "PLANKS_AND_PLATES" CATEGORY HAS BEEN ADDED

Creating new categories is straightforward, but I have a hefty caution to add. Once a category has been created, the parameter list can **NOT** be modified. Due to the importance of the parameters for ensuring data consistency, changing after creation is not allowed. If a parameter has been missed, the only alternative is to recreate the category… Therefore, great care and planning should be exercised when creating a new main CC category.

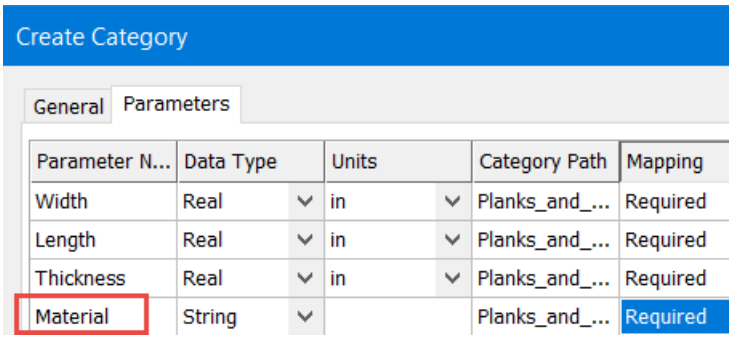


*RIGHT-CLICK ON THE CATEGORY TO ACCESS THE **CATEGORY PROPERTIES***

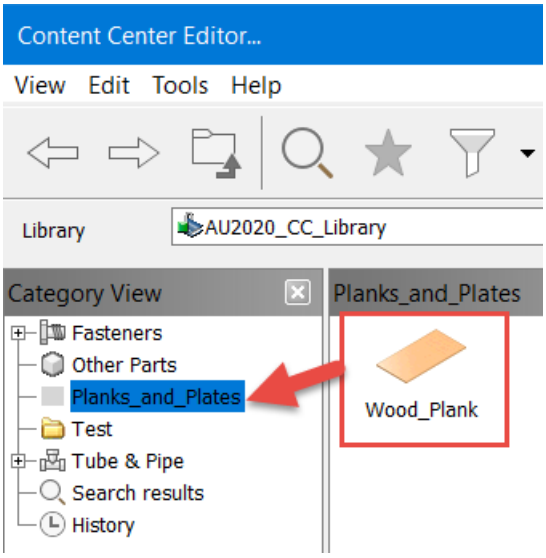


CATEGORY PARAMETERS CANNOT BE EDITED AFTER CATEGORY CREATION AND ARE "GREYED OUT"

After recreating the category with all the desired properties, then I publish my first family, a Wood_Plank. We'll cover how to create and publish our own families later, but wanted to give a preview for what is possible.



RECREATED "PLANKS_AND_PLATES" CATEGORY WITH ALL DESIRED PARAMETERS



PUBLISHED FAMILY DISPLAYED IN THE "PLANKS_AND_PLATES" CATEGORY

Customize Content Center family data

The backbone of the Content Center are the family tables that contain all the information required to select and create the parts that designers require. The out-of-the-box CC families are great, but there are some realities that limit the utility of these families for many users.

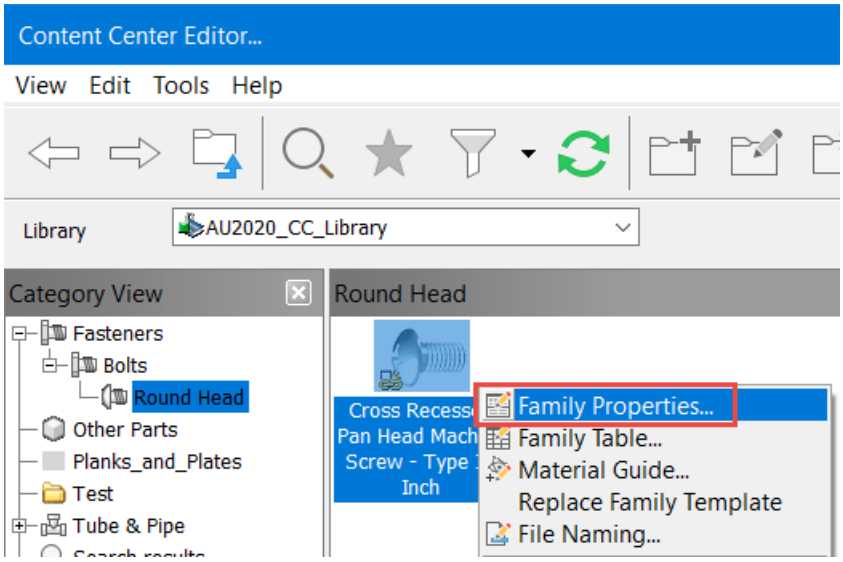
- The tables do not have every size that a designer may require
- In some instances, the tables contain too much data, that we don't want designers to use
- Part numbers are very generic, often with highly technical values, which doesn't work for most business processes

In this portion of the presentation, we'll customize family tables to address the concerns above and tailor them to suit our needs.

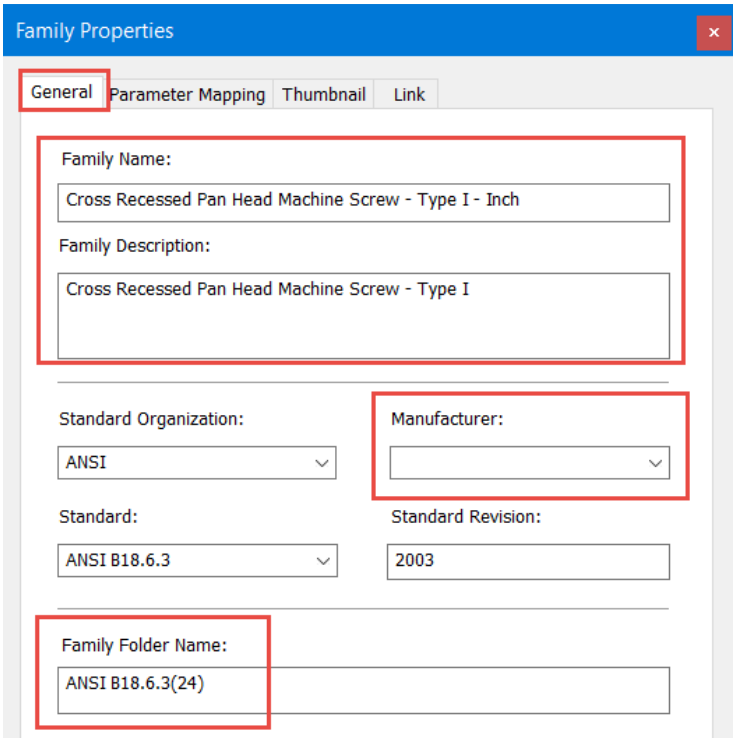
IMPORTANT NOTE: Please note that if you've already placed many CC files, you may only wish to edit some of the properties and merely update the placed CC files. For more information on this topic, please see the video link "Inventor - Update Existing Content Center Files With Better iProperty Data" in Appendix A, before proceeding.

Edit family properties

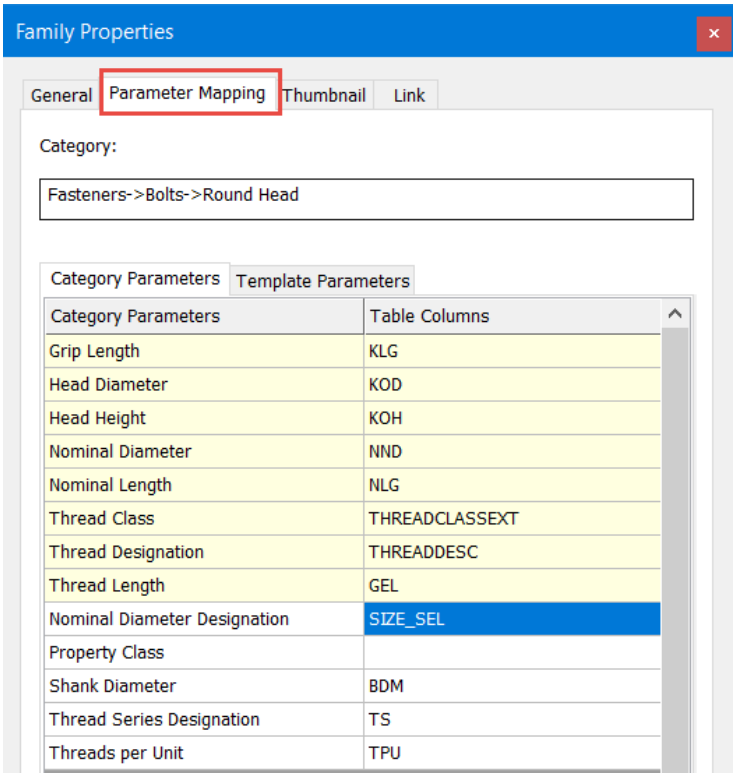
The first step to editing the families is to customize the overall properties that all members of the family share. Items such as the family name itself, or the folders where generated CC files are placed are all controlled by the family properties. To illustrate the possibilities for editing the family properties, we'll edit the pan head fastener that we copied earlier.



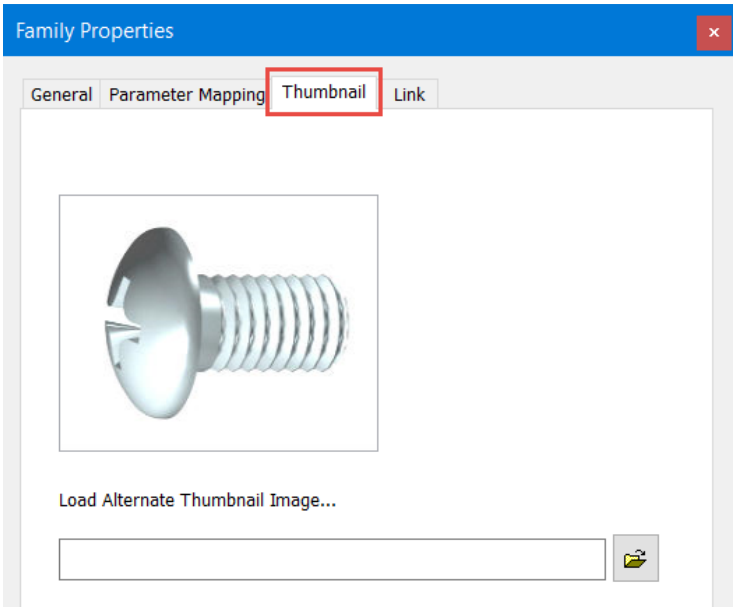
*RIGHT-CLICK ON THE COPIED PAN HEAD FASTENER TO ACCESS THE **FAMILY PROPERTIES***



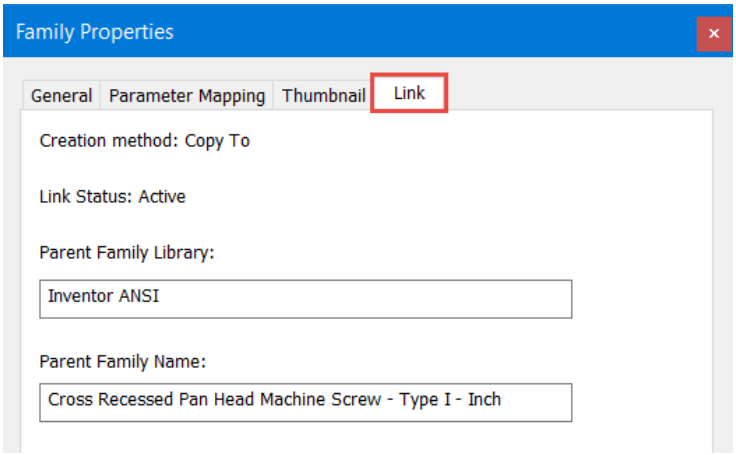
THE GENERAL TAB CONTROLS FAMILY & FOLDER NAMING, AS WELL AS STANDARD INFORMATION



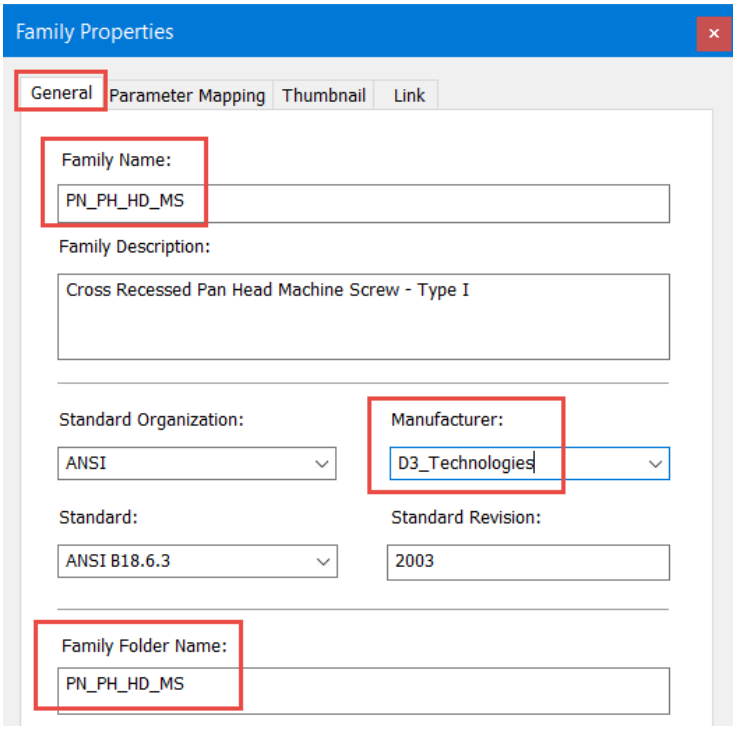
THE PARAMETER MAPPING SHOWS THE RELATIONSHIP BETWEEN CATEGORY PARAMETERS AND THE PART PARAMETERS (TABLE COLUMNS)



CHANGE THE THUMBNAIL IMAGE IF NECESSARY



VIEW THE LINK INFORMATION, IF THE FAMILY IS LINKED TO A PARENT FAMILY



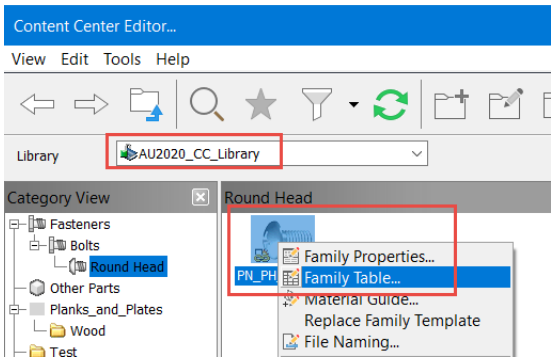
EDIT THE DESIRED PROPERTIES ON THE GENERAL TAB

Editing these properties will give greater control over where the files are stored and used. Merely the presence of simplified family name can help designers find the correct information more quickly when placing CC parts.

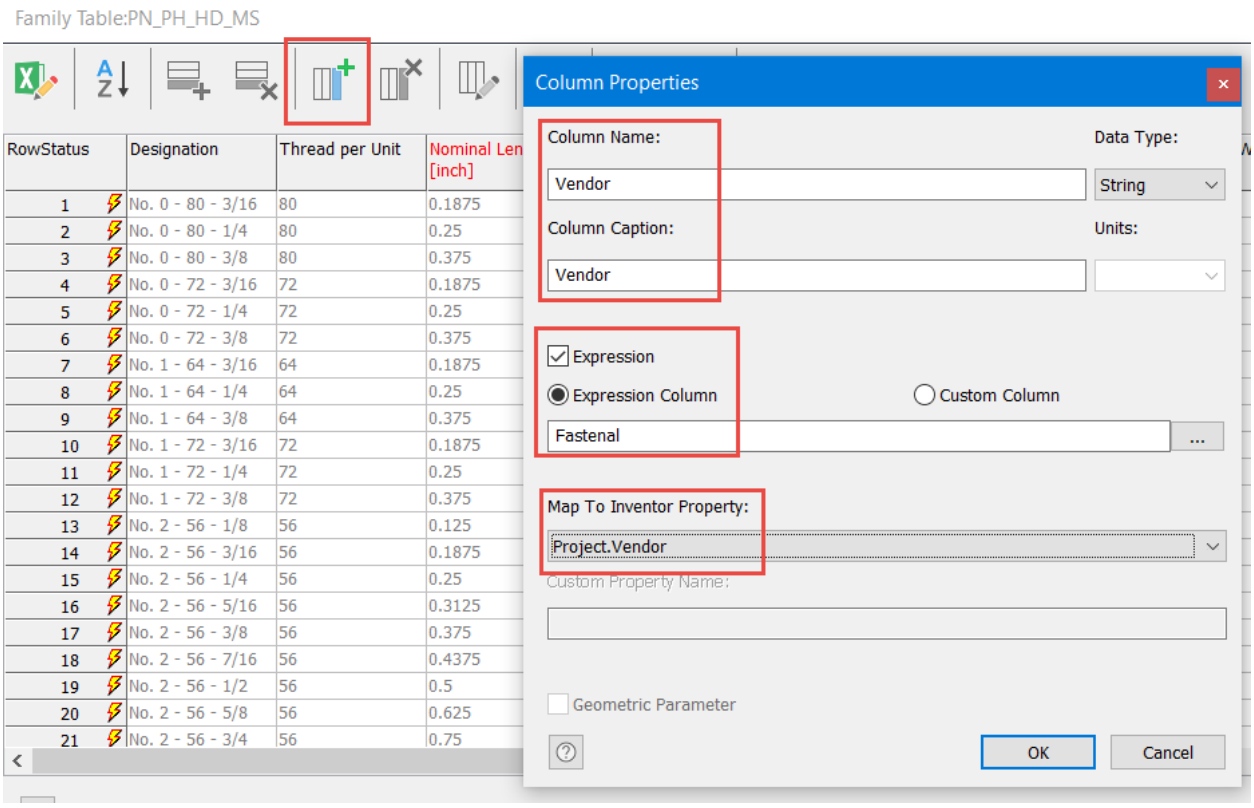
Add custom data columns

The data found within the family table itself often will need to be modified, as the available data may be incomplete for downstream business processes or we may want to add data to aid refining other properties, such as the Part Number. We'll approach this a couple of different ways: adding a column that we'll map to an iProperty and adding a column for use in the Part Number.

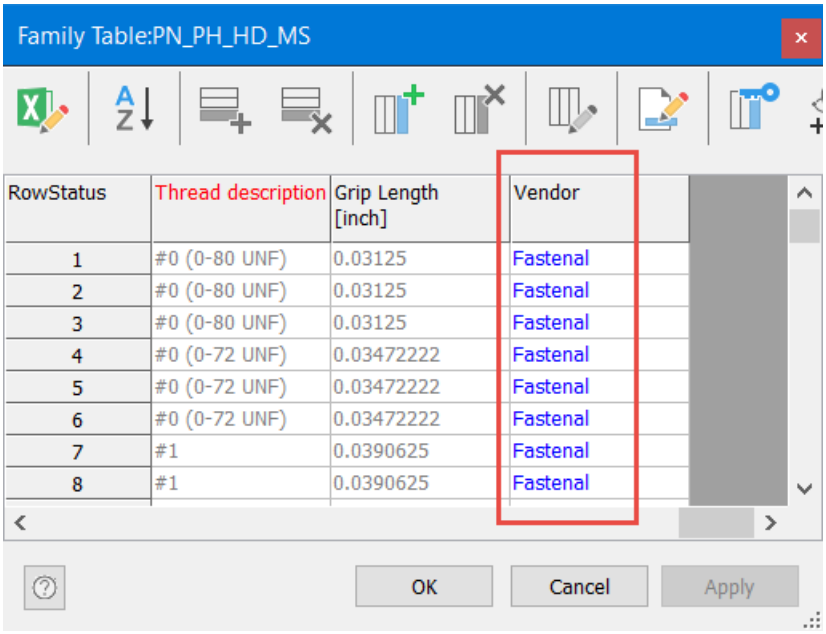
IMPORTANT NOTE: It is best to "unsuppress" any suppressed rows when adding new data columns to ensure that all data is entered, **PARTICULARLY IF EDITING VIA EXCEL**.



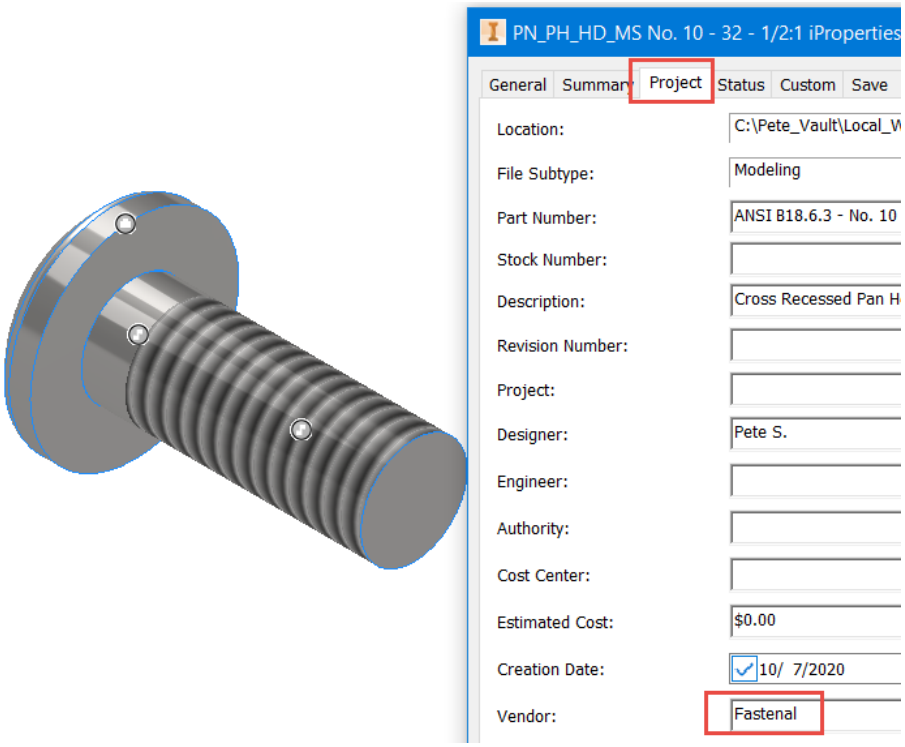
*RIGHT-CLICK ON THE COPIED FASTENER FAMILY AND EDIT THE **FAMILY TABLE***



CREATE A NEW COLUMN FOR THE "VENDOR" AND POPULATE AS SHOWN

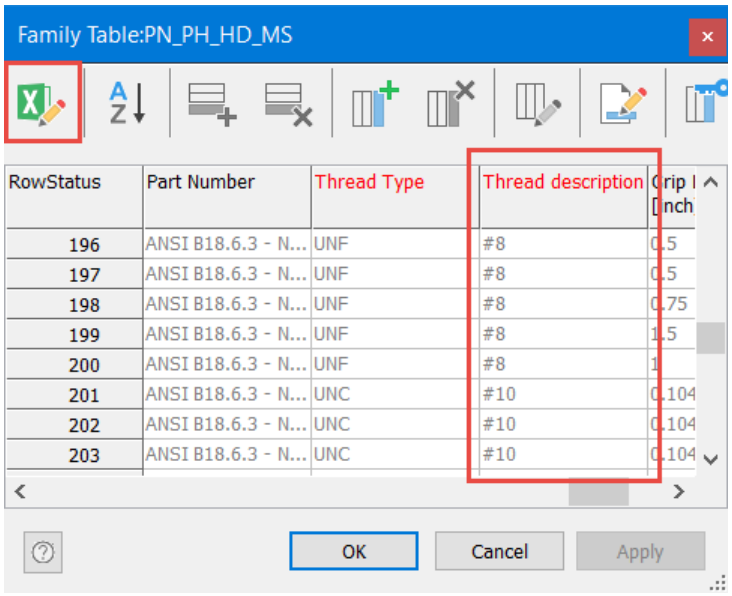


RESULTING "VENDOR" COLUMN CREATED

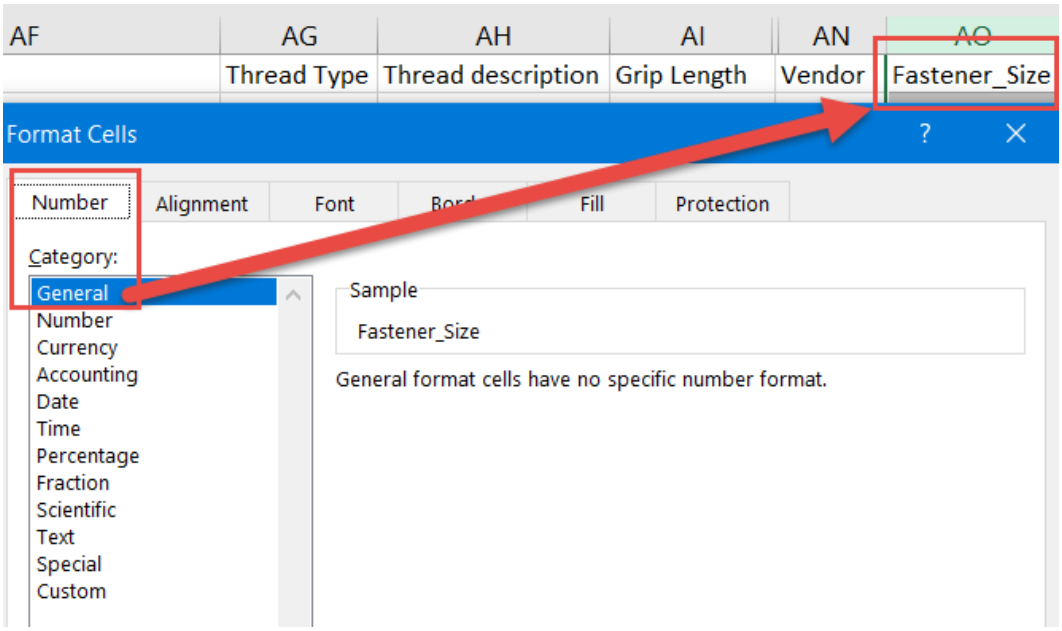


THE "VENDOR" CC COLUMN DATA IS MAPPED TO THE VENDOR IPROPERTY

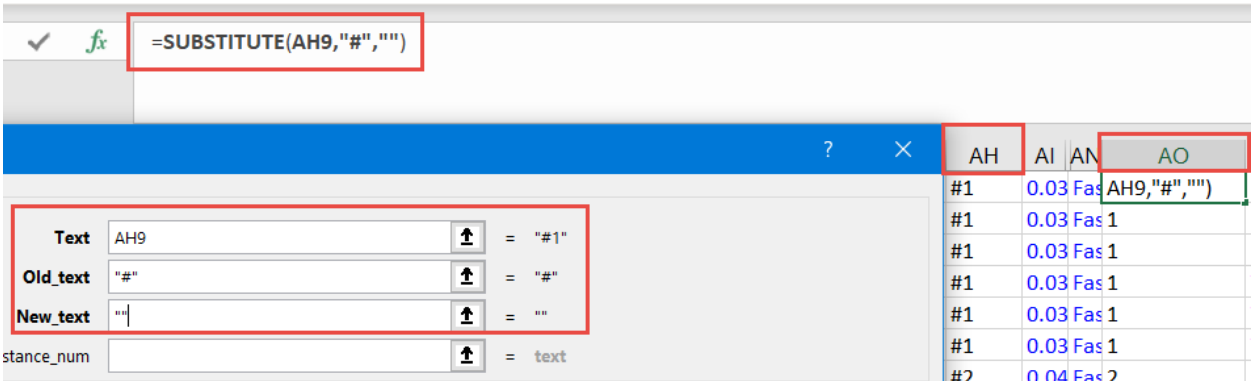
The second example of adding column data regards configuring information that will be used for generating the File Name and Part Number columns. For these fasteners, there are #8, #10, etc. values for the “Thread Description” column and I want to note those values in the Part Number, but without the “#”. This modification seems simple but will require the use of Excel to improve the efficiency of the task.



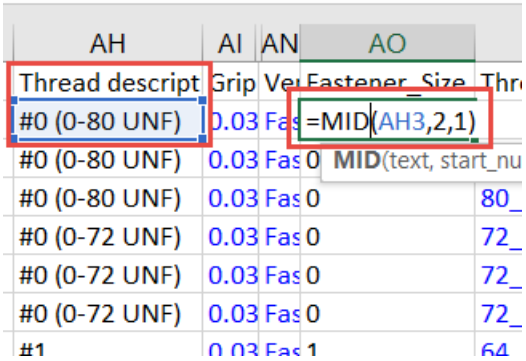
THREAD DESCRIPTION VALUES INCLUDING THE “#” AND CLICK ON THE EXCEL EDITOR TOOL



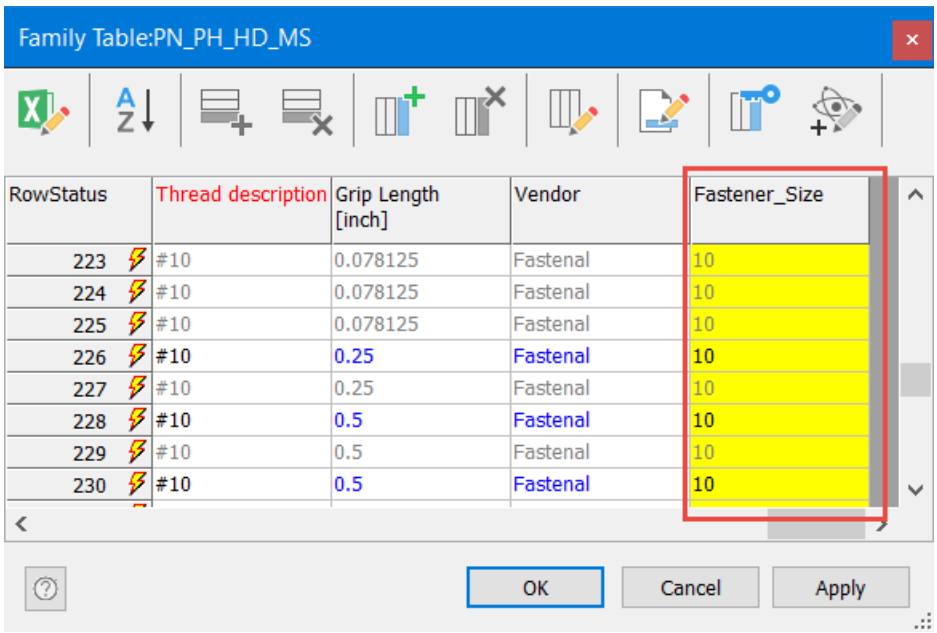
INSIDE EXCEL CREATE A NEW COLUMN NAMED “FASTENER_SIZE” AND FORMAT THE CELLS TO BE “GENERAL” VERSUS TEXT, OTHERWISE EXCEL FORMULAS WILL NOT WORK



*UTILIZE THE **SUBSTITUTE** FUNCTION WITHIN EXCEL TO REMOVE THE "#" FROM THE THREAD DESCRIPTION AND STORE IT IN THE NEW COLUMN CALLED FASTENER_SIZE. VALUES WITHOUT A "#" ARE UNAFFECTED*



*FOR SIZES THAT HAVE ADDITIONAL TEXT, SUCH AS THE #0 FASTENER, UTILIZE THE **MID** FUNCTION TO DISPLAY ONLY THE RELEVANT SIZE*



AFTER SAVING AND CLOSING THE SPREADSHEET, THE CHANGES ARE PROPOGATED BACK TO THE FAMILY TABLE

IMPORTANT NOTE: If you've already suppressed rows, you'll have to "unhide" those rows in Excel and apply the formula to those cells as well. Otherwise, you'll encounter errors when trying to publish changes to the family table in Inventor. These rows will have to be suppressed in the family table if they've been exposed in Excel.

The Excel functionality is a powerful tool to help tailor the data to align exactly with the design goals. However, the Excel formulas utilized do not remain inside the family table after closing Excel; meaning the next time the table is edited via Excel, the formulas would need to be recreated. If you'd like to utilize the power of Excel, but don't want to lose the formulas, please review one of my previous AU class, "Making the Content Center Do More for You" which offers strategies to effectively utilize Excel within the Content Center. Please see Appendix B for a link to this course.

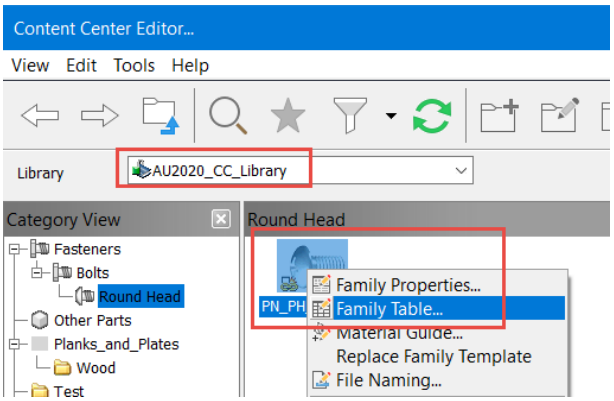
We'll utilize the "Fastener_Size" column in the next step to better control the Part Number and File Name properties.

Controlling part numbers and file names

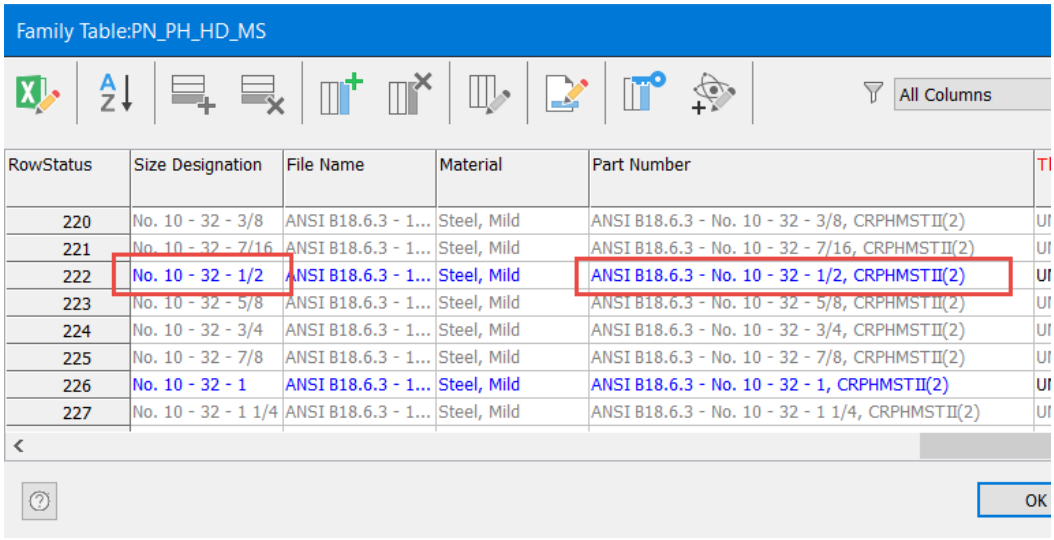
As we've seen so far, the Content Center is an excellent tool that helps to centralize and standardize many design components. However, there is one big hurdle that must be overcome before the Content Center can actually be utilized effectively, the Part Number.

Everybody on the planet has a Part Number for their fasteners. Some they generate themselves, some utilize a vendor number, such as Fastenal, but one thing is clear; there are a myriad of Part Number options across the full spectrum of companies and industries. To make things as flexible as possible, Autodesk has chosen to use the highly technical Part Numbers utilized by standards organizations, such as ANSI. While this is technically correct, I don't know of many clients who use the "ANSI.B18.6.3" as the Part Number for their Pan Head Machine Screws in the ERP system. To fully realize the benefit of the CC, we'll have to edit the Part Numbers and File Names inside the family table.

There are actual two ways to modify the Part Number within the family table and I'll cover the most straightforward method first, manually assigning data.



*EDIT THE **FAMILY TABLE** TO ACCESS THE PART NUMBER COLUMN*



NOTE THE ORIGINAL PART NUMBER FOR THE #10-32 FASTENER

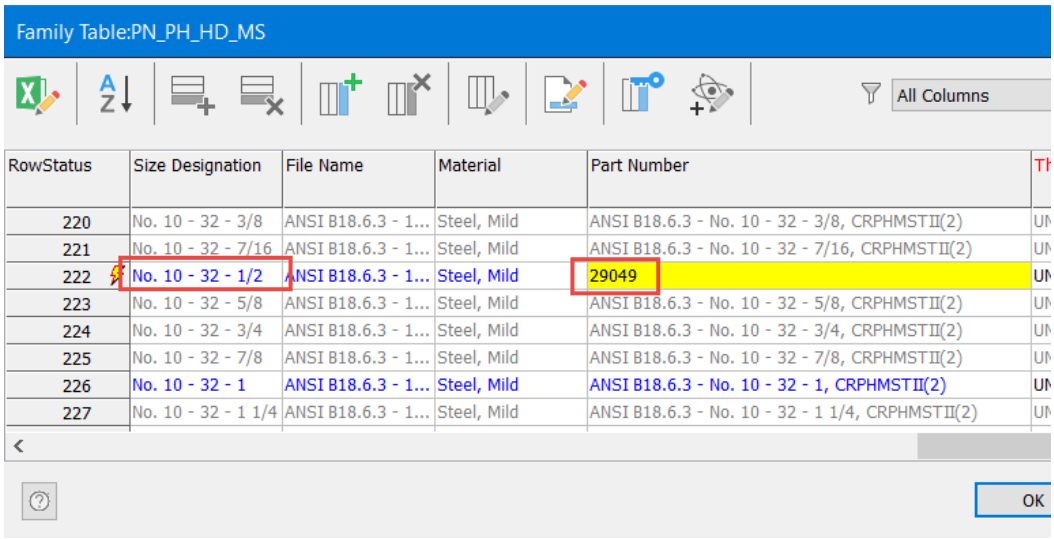
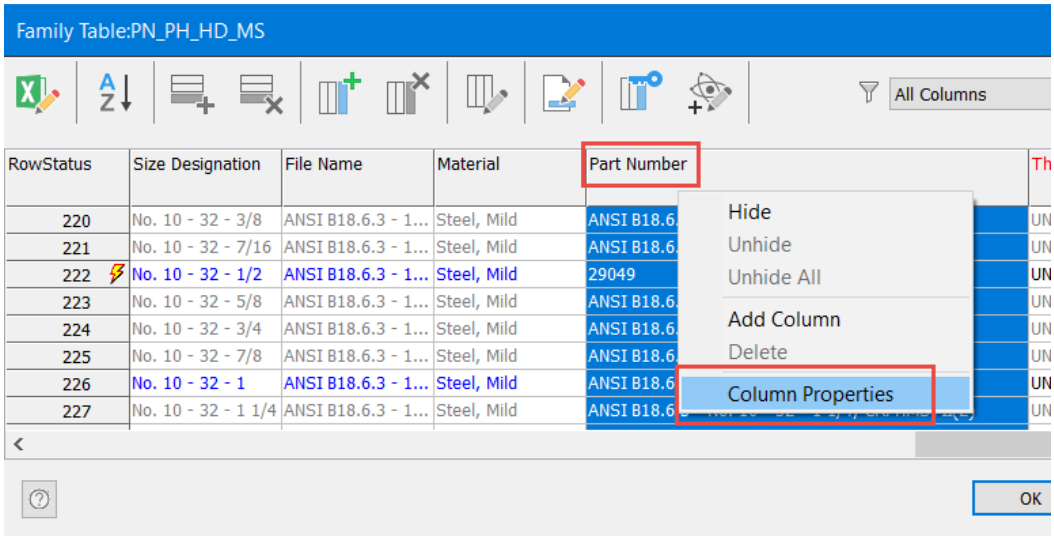


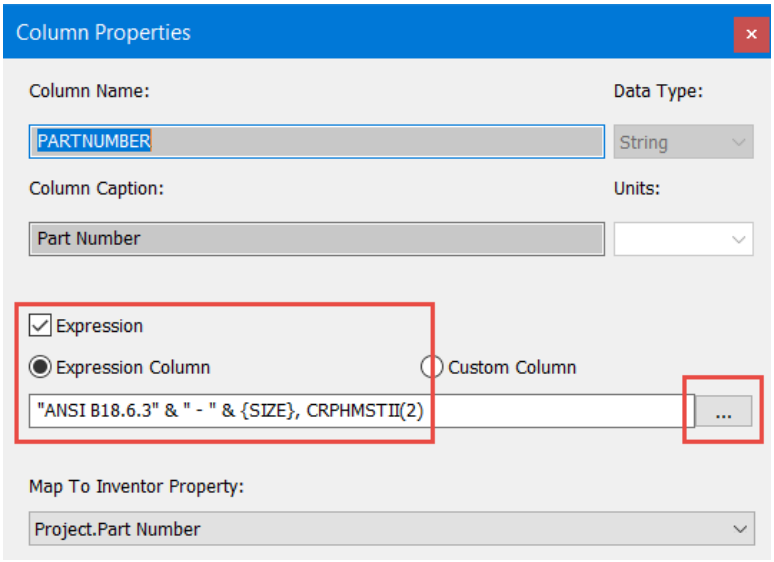
TABLE VALUES CAN BE MANUALLY MODIFIED, IN THIS CASE THE FASTENAL PART NUMBER HAS BEEN ENTERED

The first method is very straightforward and is utilized whenever specific values are required for the Part Number. However, this method can be quite tedious and time consuming, especially if there are many rows that must be modified. As we saw in the previous section, this can be expedited by using Excel, if the Part Numbers follow some sort of pattern.

The second method involves building an expression that utilizes other column data to compile a complete Part Number. While this method takes a bit of time to configure, all rows are updated simultaneously, and any new rows will utilize the Part Number configuration. An example Part Number process is illustrated below.

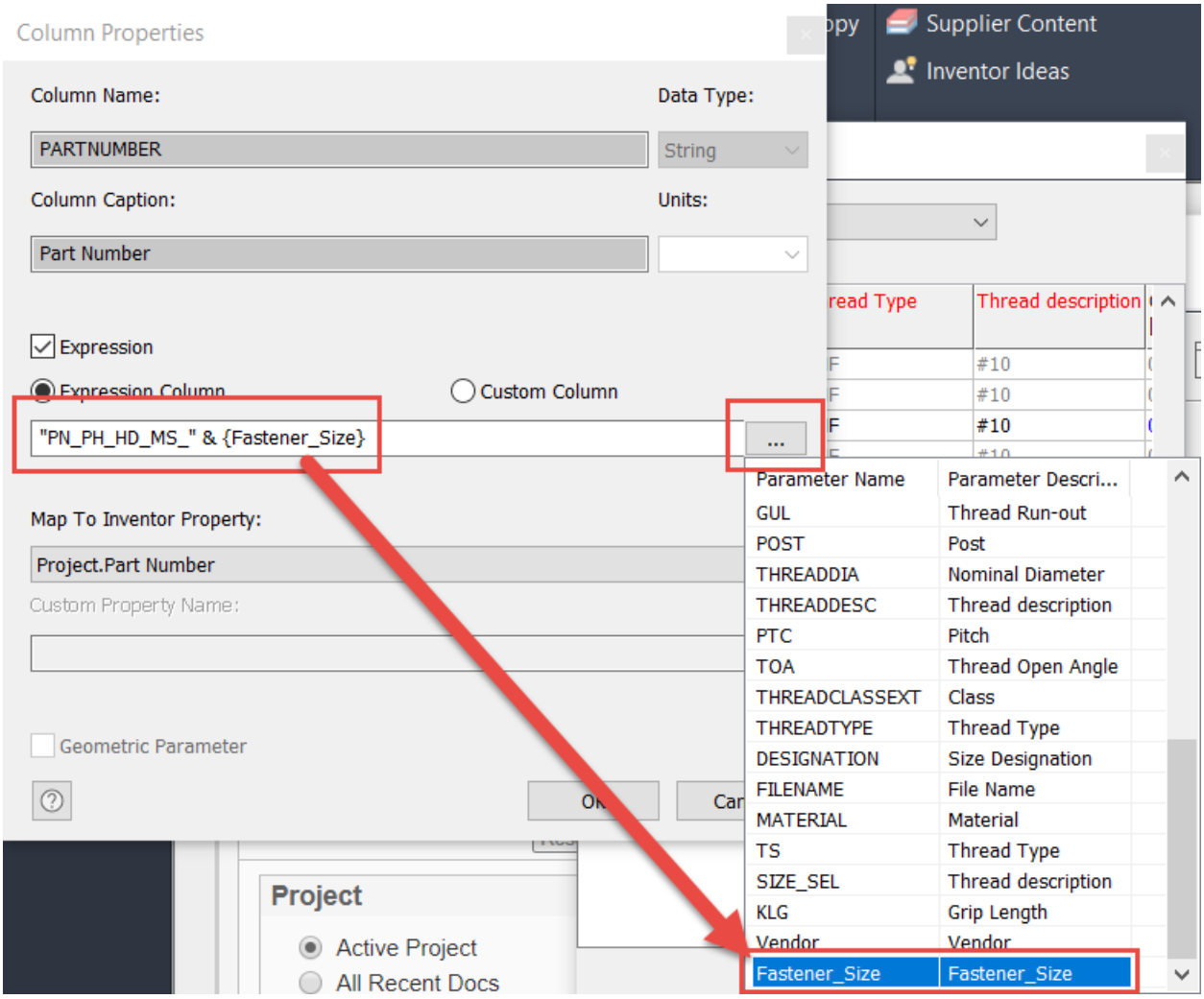


*RIGHT-CLICK ON THE PART NUMBER COLUMN HEADER AND SELECT THE **COLUMN PROPERTIES** OPTION*

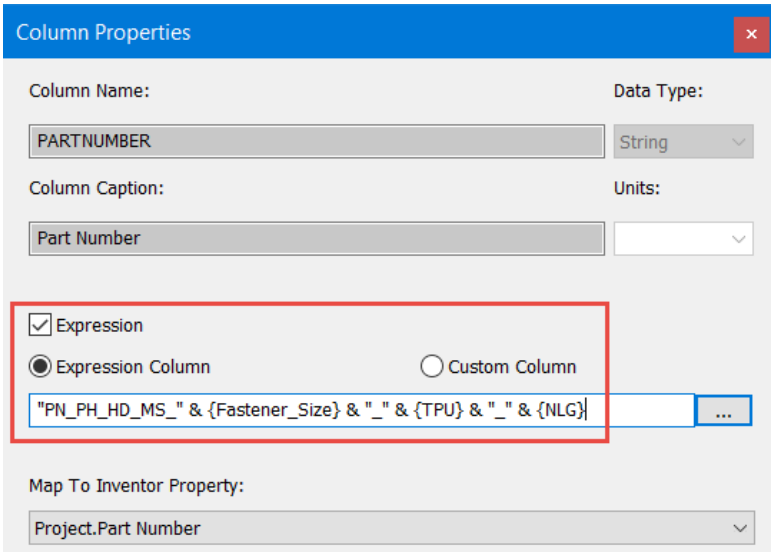


THE PART NUMBER IS BEING SET BY AN EXPRESSION COLUMN

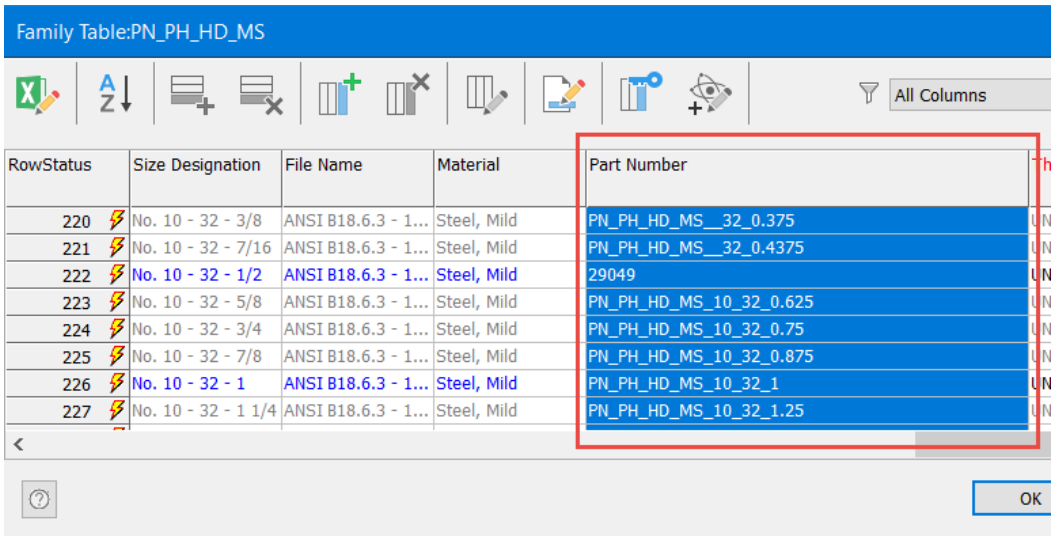
The Part Number is being defined by a combination of text and the **{SIZE}** property. In the Expression Column simple text must be designated within quotation mark **“ “** and the **&** (ampersand) allows multiple properties and text to be combined. Our goal is to replace the technical ANSI code with a Part Number that’s more descriptive. In this example, we’ll utilize the “PN_PH_HD_MS” designation from our family properties in combination with some of the other column properties to accomplish that goal.



ALTER THE TEXT TO MATCH THE FAMILY PROPERTIES AND COMBINE WITH THE CUSTOM COLUMN "FASTENER_SIZE"

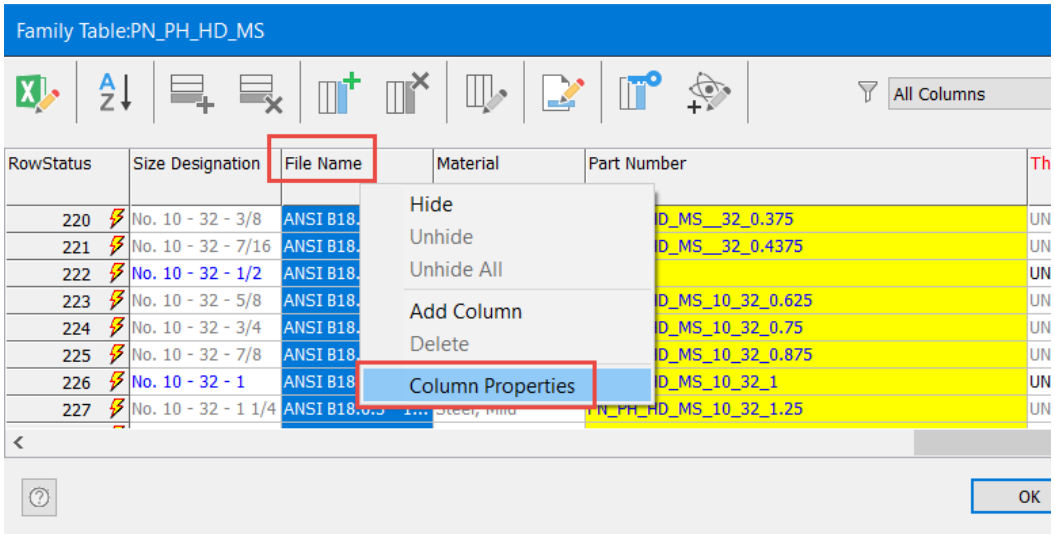


COMPLETE THE ENTIRE EXPRESSION WITH ADDITIONAL TEXT AND DESIRED PROPERTIES

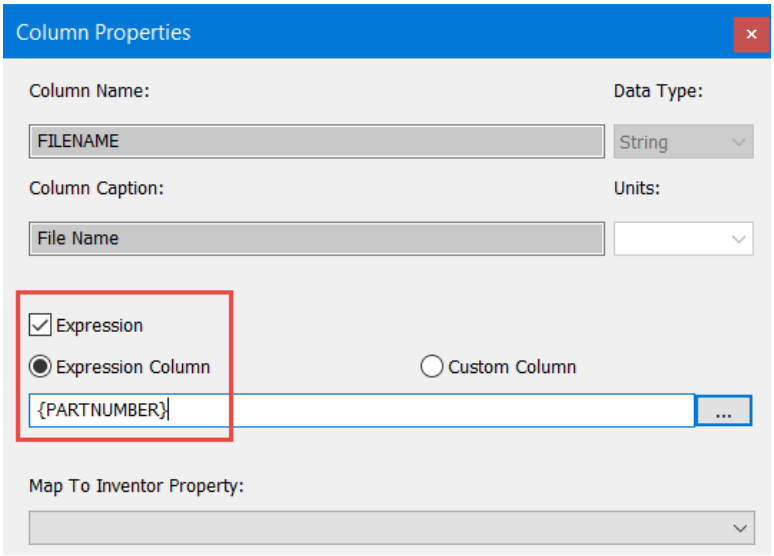


THE PART NUMBER HAS UPDATED FOR ALL COLUMNS WITHOUT MANUAL OVERRIDEN TEXT

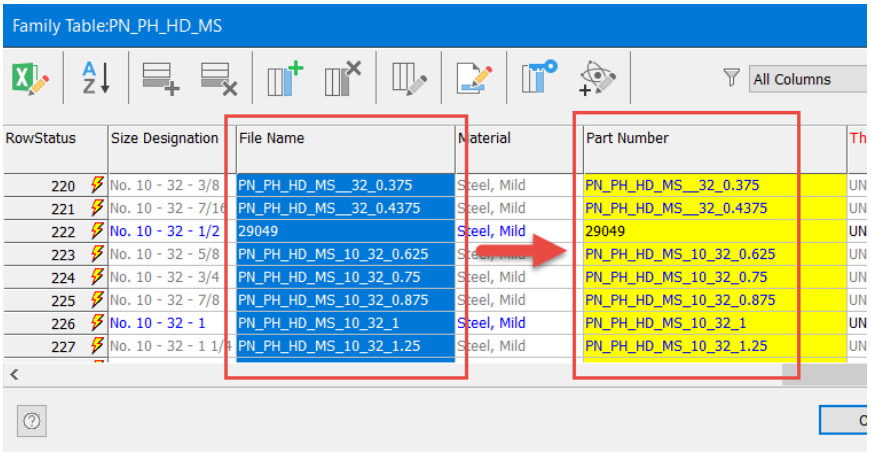
Utilizing an expression is the most efficient way to populate the column properties, yet still allow manual overrides when appropriate. An expression column can be very simple as well, merely linking up to another column property, as in the example of the File Name shown below.



*RIGHT-CLICK ON THE "FILE NAME" COLUMN HEADING TO ACCESS THE **COLUMN PROPERTIES***

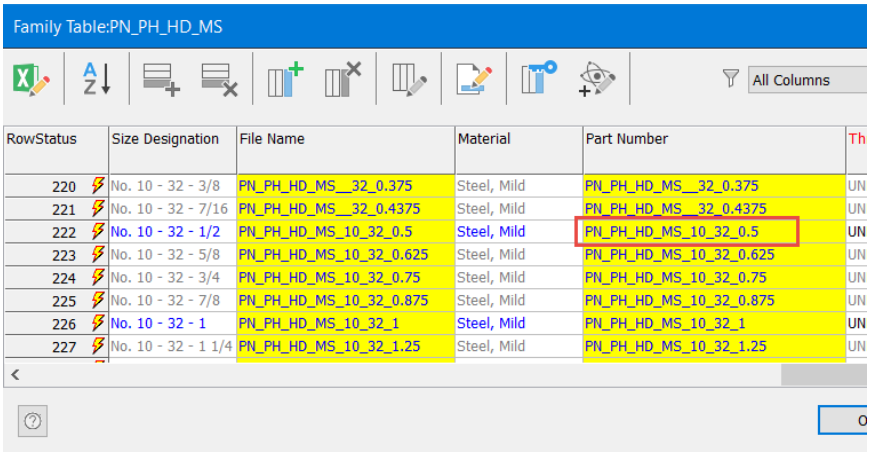


SET THE FILE NAME EQUAL TO THE PAR NUMBER PROPERTY



THE RESULTING FILE NAME

Changing the File Name to match the Part Number makes sense much of the time, but not all the time. I merely wanted to show the possibility exists to do so. Everything is looking good, except for the Part Number assigned to the #10-32 x ½ fastener, which is still utilizing the Fastenal value. To reinstate the expression for that particular value, simply delete the manually applied text and the expression will be reapplied.

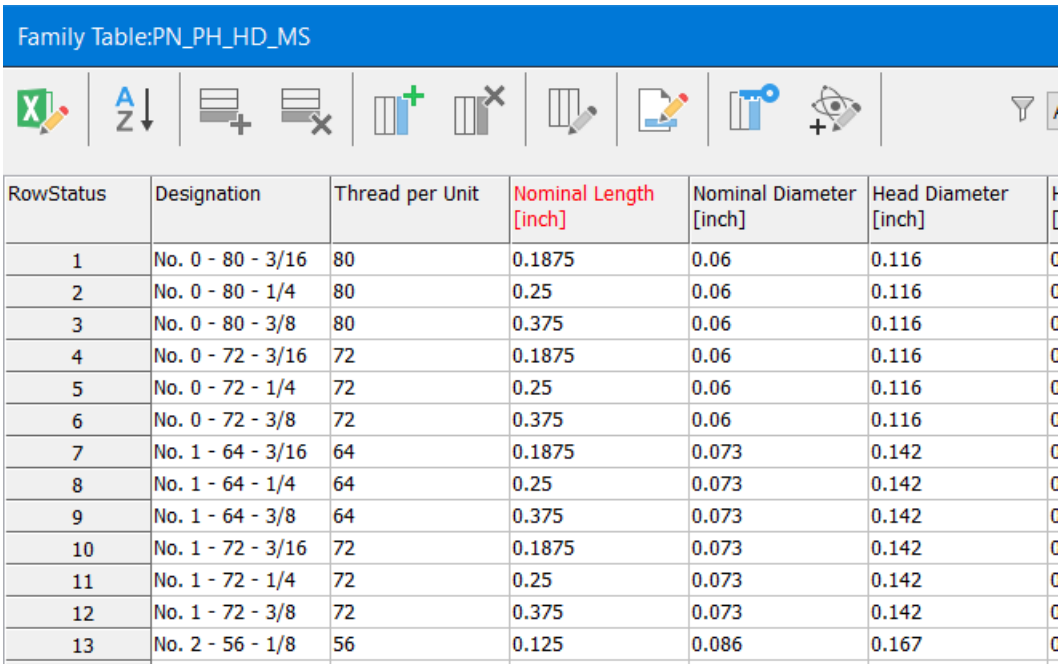


DELETING THE MANUAL VALUE FOR PART NUMBER REVERTS TO THE EXPRESSION VALUE

This technique can be applied to any column but is especially fitting for the Part Number and File Name properties. As a reminder see the “Inventor - Update Existing Content Center Files With Better iProperty Data” video link in Appendix A, if you’ve already placed LOTS of CC files and merely want to update the Part Numbers for existing parts.

Pare down lists for lean design

Once the family properties have been modified as desired, it's time to turn our attention to the data within the family itself, the family table. The family table itself is just a large database of unique versions for a particular class of component. For example, a fastener family table may contain all sizes ranging from a #6 through a 1/2. With some family tables having hundreds of rows, we need to pare down the list of available versions for the designers to select. This will improve inventory flow, design for manufacturability and overall design consistency.

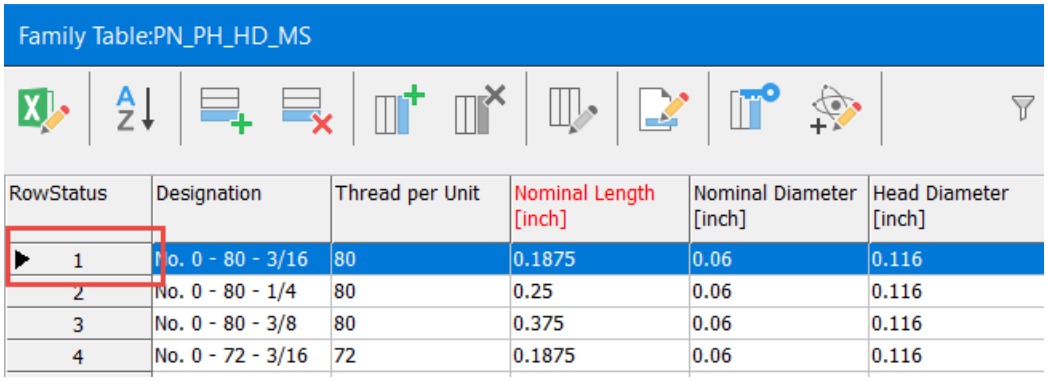


RowStatus	Designation	Thread per Unit	Nominal Length [inch]	Nominal Diameter [inch]	Head Diameter [inch]	H [
1	No. 0 - 80 - 3/16	80	0.1875	0.06	0.116	0
2	No. 0 - 80 - 1/4	80	0.25	0.06	0.116	0
3	No. 0 - 80 - 3/8	80	0.375	0.06	0.116	0
4	No. 0 - 72 - 3/16	72	0.1875	0.06	0.116	0
5	No. 0 - 72 - 1/4	72	0.25	0.06	0.116	0
6	No. 0 - 72 - 3/8	72	0.375	0.06	0.116	0
7	No. 1 - 64 - 3/16	64	0.1875	0.073	0.142	0
8	No. 1 - 64 - 1/4	64	0.25	0.073	0.142	0
9	No. 1 - 64 - 3/8	64	0.375	0.073	0.142	0
10	No. 1 - 72 - 3/16	72	0.1875	0.073	0.142	0
11	No. 1 - 72 - 1/4	72	0.25	0.073	0.142	0
12	No. 1 - 72 - 3/8	72	0.375	0.073	0.142	0
13	No. 2 - 56 - 1/8	56	0.125	0.086	0.167	0

THE FAMILY TABLE IS A DATABASE WITH POTENTIALLY HUNDREDS (OR THOUSANDS) OF DATA ROWS

Depending on the designs, a #0 fastener may never be used at your company. Personally, I've never used anything smaller than a #6 fastener. In addition to this, there are several lengths of fasteners shown for each fastener diameter. Many of these lengths may never be used by a design department and by standardizing on specific lengths, downstream ordering and inventory systems can be simplified.

There are two options for paring down the number of available data rows, deleting or suppressing them. I recommend and will be demonstrating in this presentation the suppress technique, which offers long-term flexibility. If I suppress a row, I can unsuppress it later, if the need for the particular fastener arises. However, if I delete the row and require it at some later day, I'll have to recreate that row. See the following example:

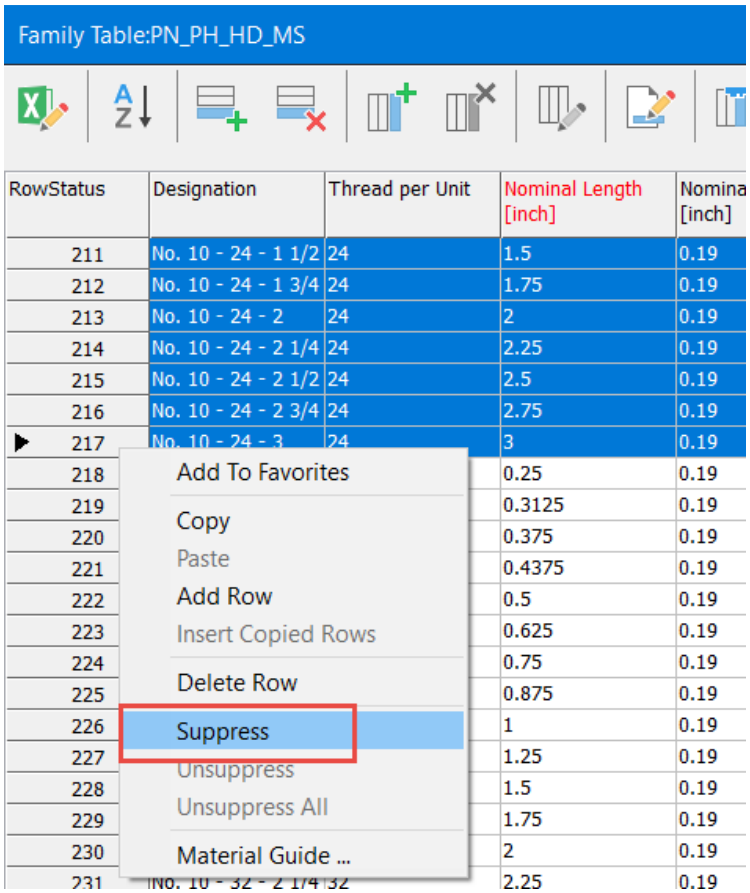


RowStatus	Designation	Thread per Unit	Nominal Length [inch]	Nominal Diameter [inch]	Head Diameter [inch]
▶ 1	No. 0 - 80 - 3/16	80	0.1875	0.06	0.116
2	No. 0 - 80 - 1/4	80	0.25	0.06	0.116
3	No. 0 - 80 - 3/8	80	0.375	0.06	0.116
4	No. 0 - 72 - 3/16	72	0.1875	0.06	0.116

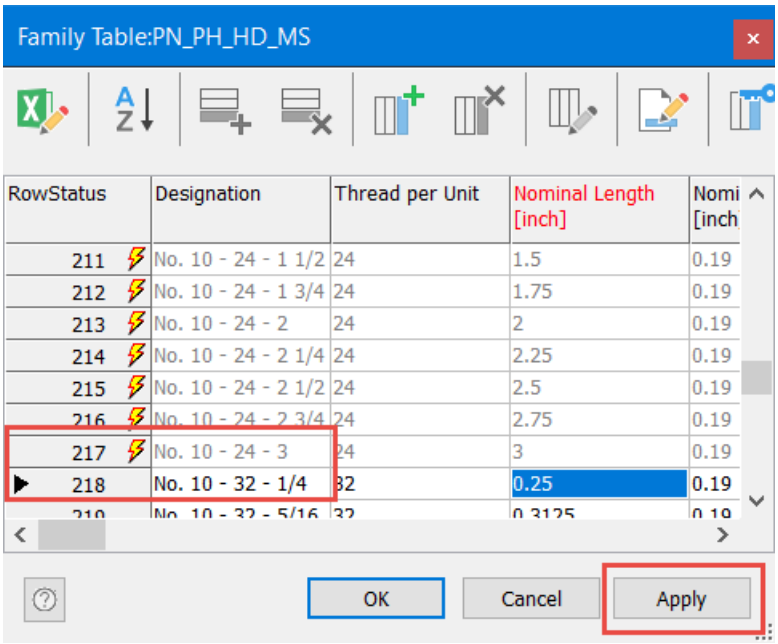
LEFT-CLICK ON THE ROW 1 INDICATOR AT THE LEFT

RowStatus	Designation	Thread per Unit	Nominal Length [inch]	Nominal Diameter [inch]	Head Diameter [inch]
211	No. 10 - 24 - 1 1/2	24	1.5	0.19	0.373
212	No. 10 - 24 - 1 3/4	24	1.75	0.19	0.373
213	No. 10 - 24 - 2	24	2	0.19	0.373
214	No. 10 - 24 - 2 1/4	24	2.25	0.19	0.373
215	No. 10 - 24 - 2 1/2	24	2.5	0.19	0.373
216	No. 10 - 24 - 2 3/4	24	2.75	0.19	0.373
▶ 217	No. 10 - 24 - 3	24	3	0.19	0.373
218	No. 10 - 32 - 1/4	32	0.25	0.19	0.373
219	No. 10 - 32 - 5/16	32	0.3125	0.19	0.373

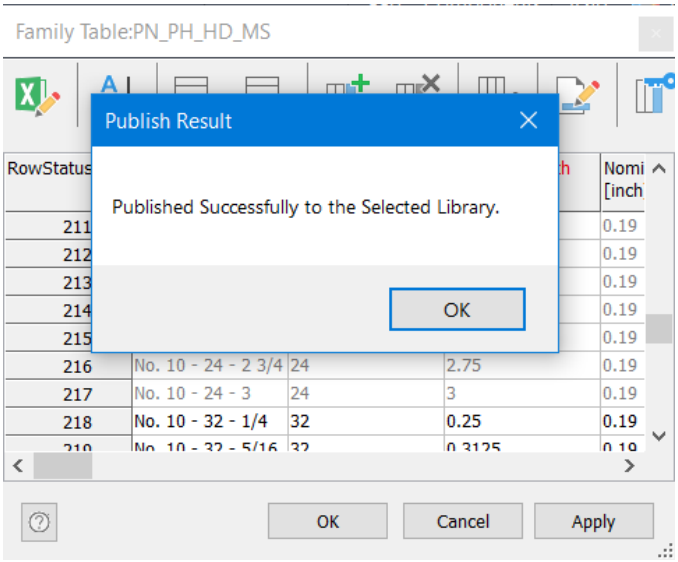
PRESS AND HOLD THE SHIFT KEY WHILE LEFT CLICKING ON ROW INDICATOR 217 TO SELECT ALL ROWS FROM 1 THROUGH 2017



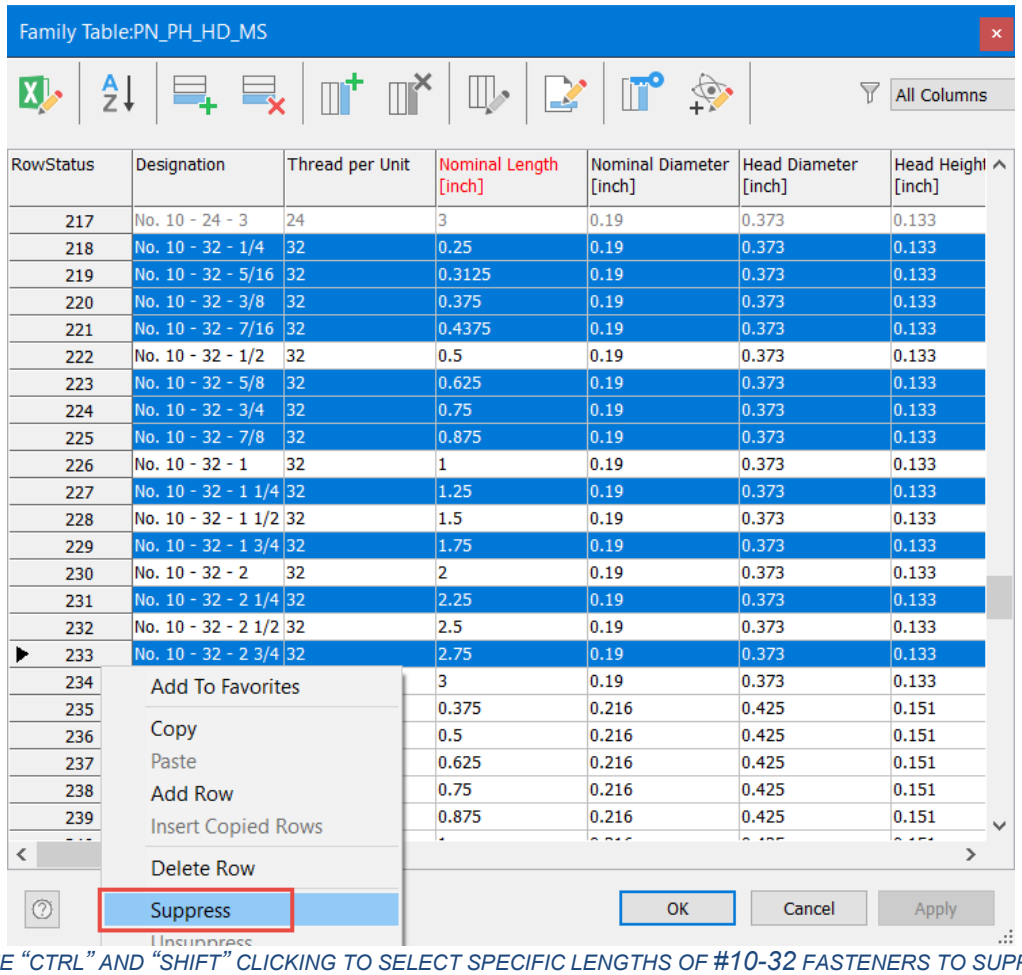
RIGHT-CLICK ON ONE OF THE SELECTED ROW INDICATORS AND CHOOSE THE SUPPRESS OPTION



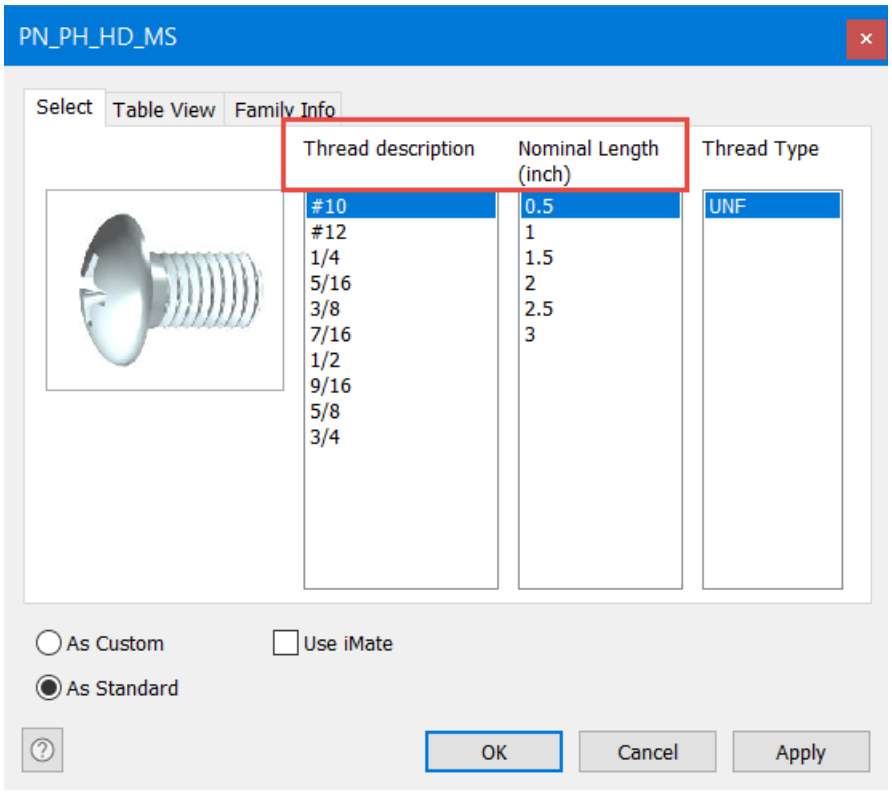
SUPPRESSED ROWS DISPLAY IN PALE GREY AND THE APPLY BUTTON WILL PUBLISH THE CHANGES FOR ALL USERS



SUCCESSFUL PUBLISH



UTILIZE "CTRL" AND "SHIFT" CLICKING TO SELECT SPECIFIC LENGTHS OF #10-32 FASTENERS TO SUPPRESS



PLACING THE FASTENER FROM CC IN THE ASSEMBLY REVEALS THE PARED DOWN SELECTION LIST, NOTING NO SIZES BELOW #10 AND ONLY THE SPECIFIED LENGTHS REMAIN

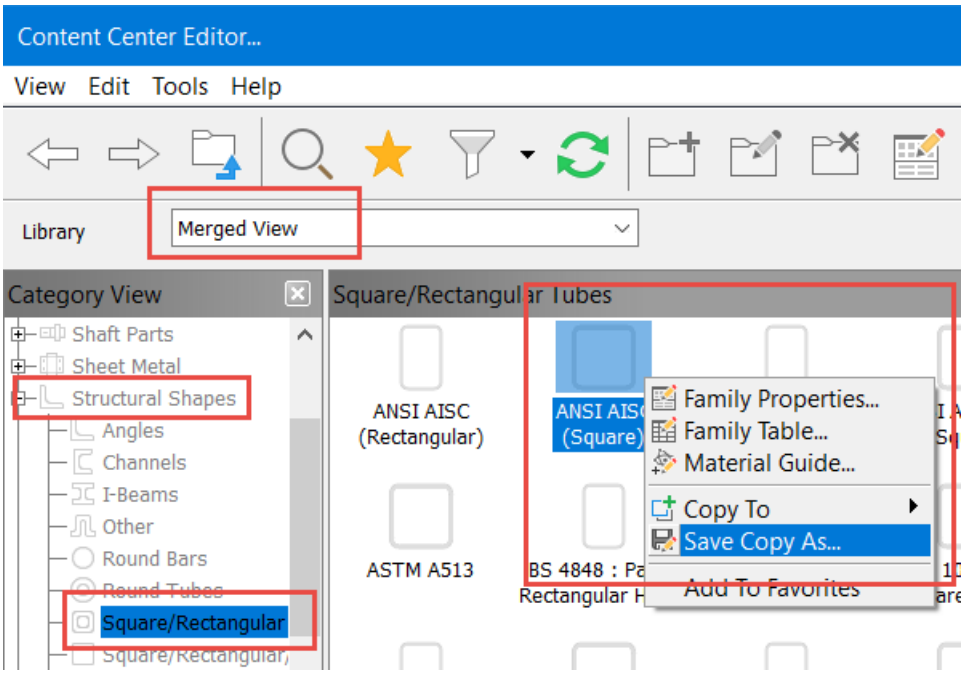
As you can see, paring down the selection list reduces the risk of designers utilizing parts that are not stocked and helps to standardize component usage. This is merely the first step in aligning the CC to meet the requirements of the design department, but it is a very important one.

Replace family templates for added flexibility

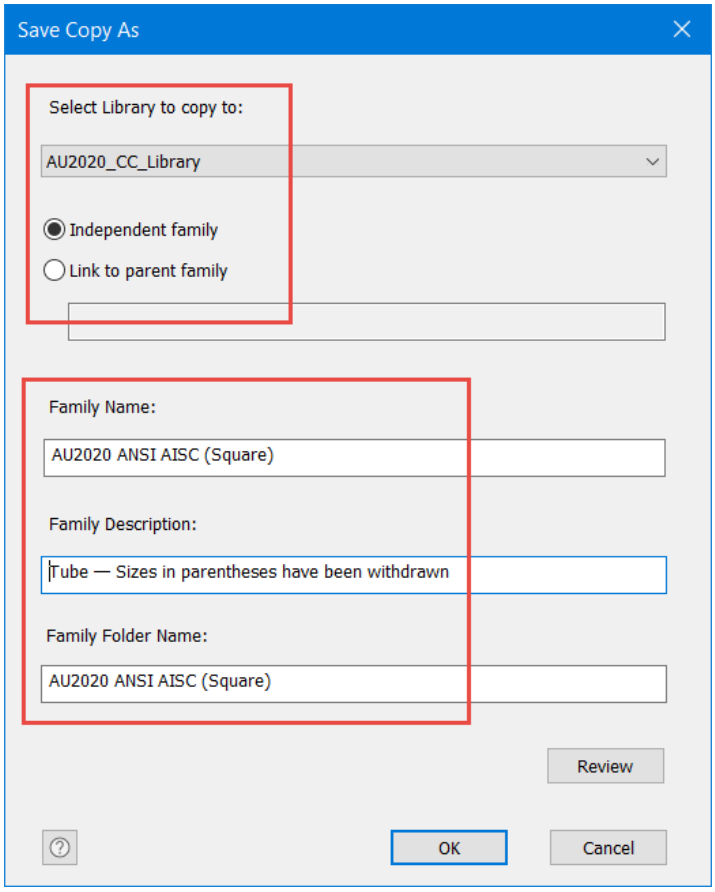
We've worked hard to configure the family properties and edit the family table, but sometimes work must be done to even set the stage for this important work. Perhaps some of the geometry needs to change or maybe some new iProperty values need to be added to the table. Even through the family tables are databases, they are based on a model definition. If aspects of the model need to change or new iProperties must be linked into the family table, then the model definition for the family table needs to be updated. This can be accomplished using the **Replace Family Template** tool.

To replace the family template, we must first gain access to a generated content center file and make all the necessary modifications. To illustrate this process, we'll look at the ANSI structural square tube to make changes to the length parameter formatting and to add a custom iProperty to aid in a downstream business system. I've had customers ask how to implement fractional feet and inches into structural member part lengths and how to implement abbreviated material codes, so we'll specifically cover those scenarios.

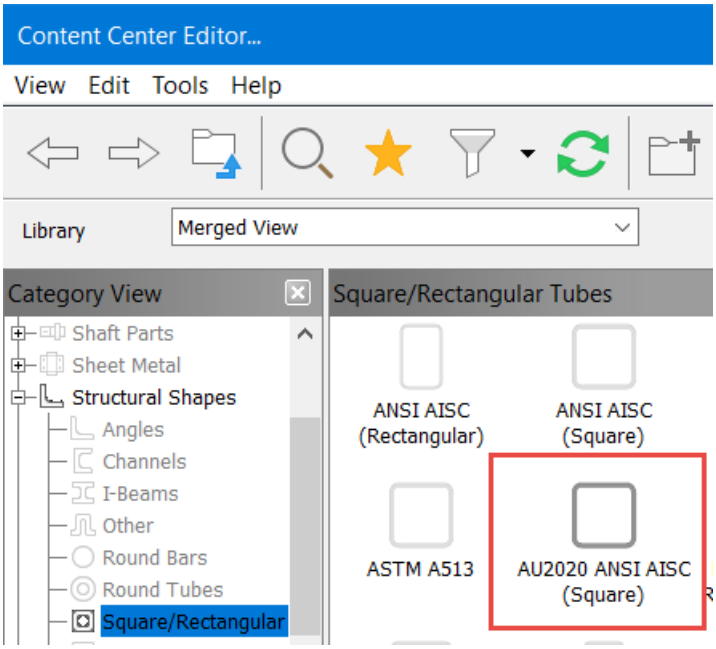
To make any changes to a family table, we must make a copy into our custom CC library. Normally, we would use the **Copy to** command, but we'll use **Save Copy As** because we don't want changes to the original, linked, family table to override changes we make to the CC family template.



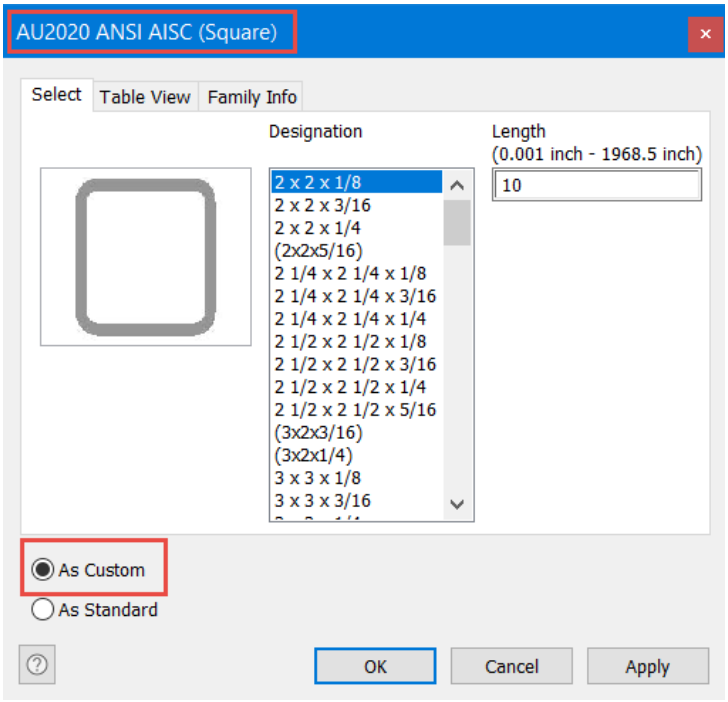
*WITHIN THE MERGED VIEW OF THE CC EDITOR, SELECT THE "ANSI AISC (SQUARE)" FAMILY AND LAUNCH THE **SAVE COPY AS** TOOL*



*MODIFY THE SETTINGS AND EXECUTE THE **SAVE COPY AS***

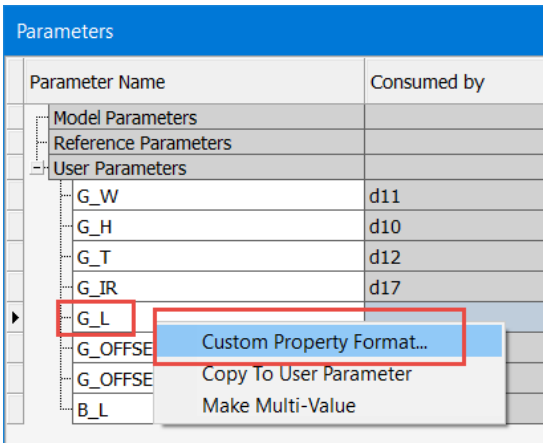


RESULTING CUSTOM FAMILY TABLE

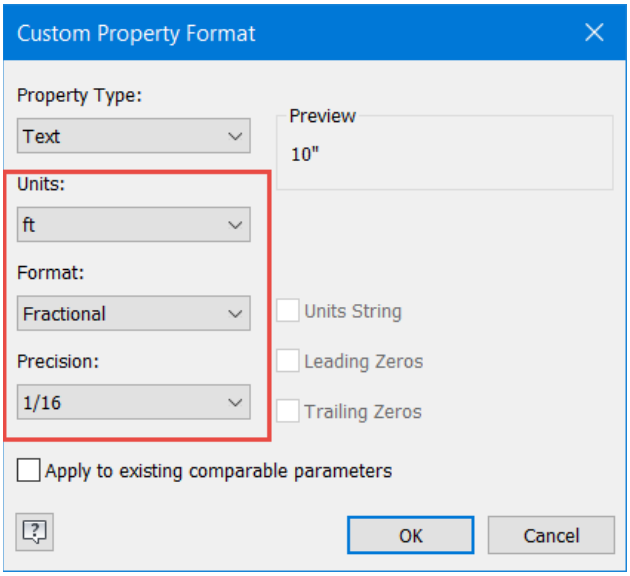


PLACE A VERSION OF THE CC FAMILY AND SAVE "AS CUSTOM"

Saving the CC file "As Custom" will allow us to make the necessary modifications without having to use second project file or any other tricks to make the CC file "Read / Write". We'll start by jumping onto the Parameter table to change the format of the length parameter.



*INSIDE THE PARAMETER TABLE, RIGHT-CLICK ON THE "G_L" PARAMETER AND SELECT THE **CUSTOM PROPERTY FORMAT** OPTION*



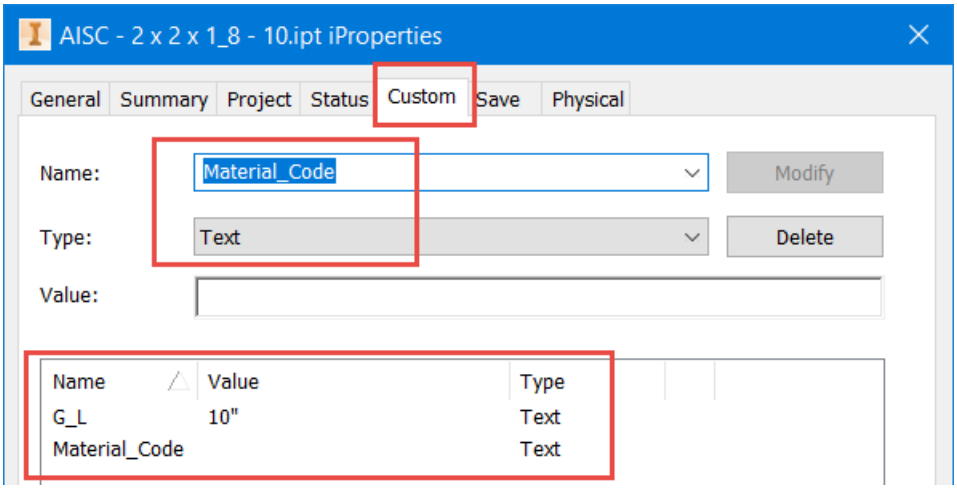
MODIFY THE PARAMETER FORMAT TO UTILIZE FRACTIONAL FEET AND INCHES

Parameters

Parameter Name	Cc	Uni	Equation	Nominal Value	Tol.	Model Value	Key	Export Parameter
Model Parameters								
Reference Parameters								
User Parameters								
G_W	d..	in	2 in	2.000000		2.000000	☐	☐
G_H	d..	in	2 in	2.000000		2.000000	☐	☐
G_T	d..	in	0.125 in	0.125000		0.125000	☐	☐
G_IR	d..	in	0.25 in	0.250000		0.250000	☐	☐
G_L		in	d19	10.000000		10.000000	☐	☑
G_OFFSET_START	d..	in	0 in	0.000000		0.000000	☐	☐

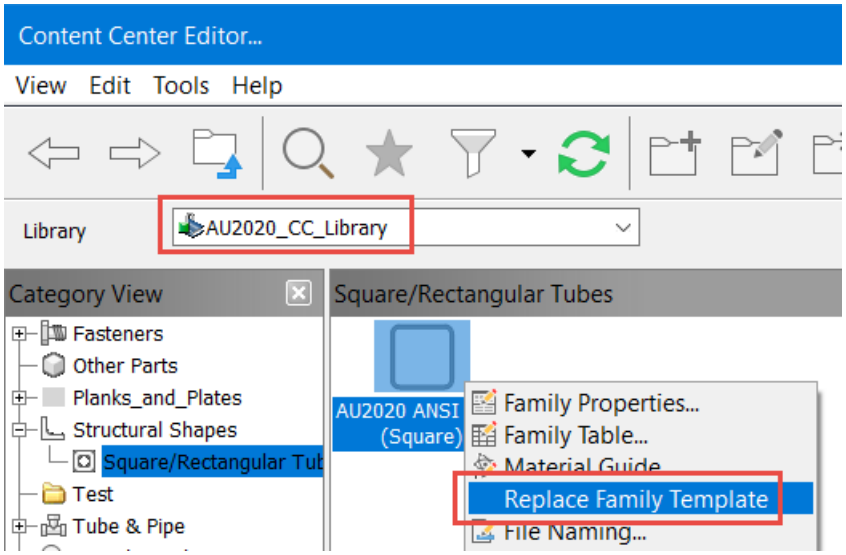
ENSURE THAT THE PARAMETER IS CHECKED AS AN "EXPORT PARAMETER" IF YOU PLAN ON USING THIS IN THE CUSTOM IPROPERTIES

The next modification will require us to create a custom iProperty for the material code that can be linked within the CC family table.

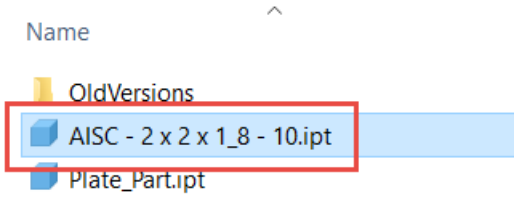


CREATE A CUSTOM TEXT IPROPERTY NAMED "MATERIAL_CODE" & NOTE THE PRESENCE OF THE "G_L" IPROPERTY

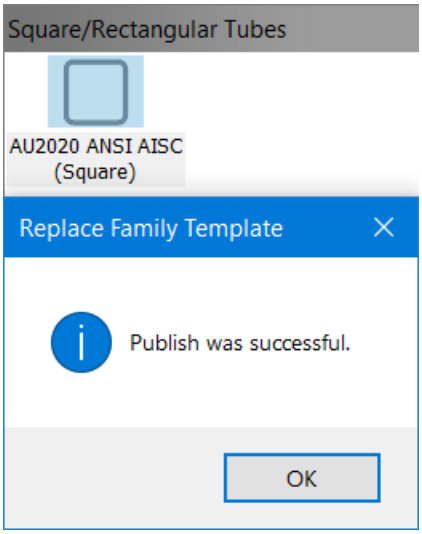
Once the modifications have been saved within the component, the family template can be replaced, and the new data can be utilized within the family table.



*WITHIN THE CONTENT CENTER EDITOR, RIGHT-CLICK ON THE COPIED SQUARE TUBE FAMILY AND SELECT **REPLACE FAMILY TEMPLATE***

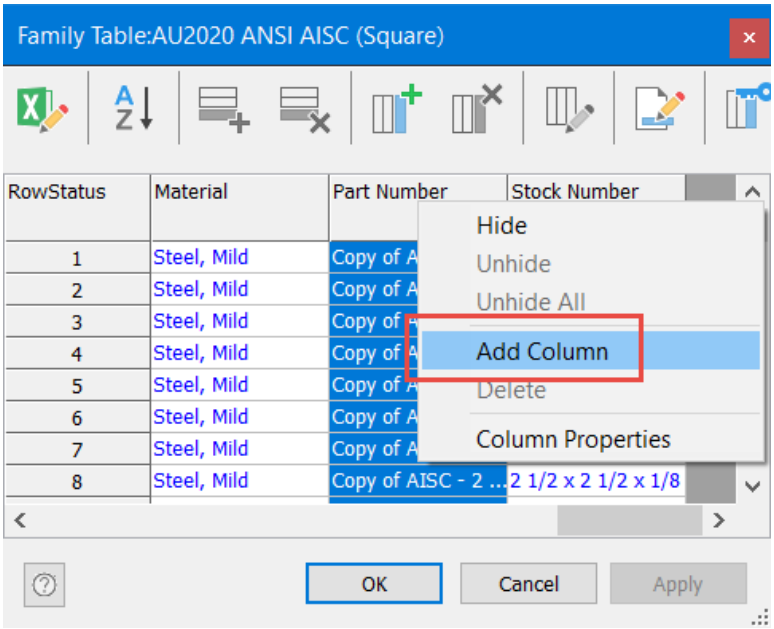


NAVIGATE TO AND SELECT THE MODIFIED / PLACED CC FILE AS THE SOURCE FOR THE REPLACEMENT

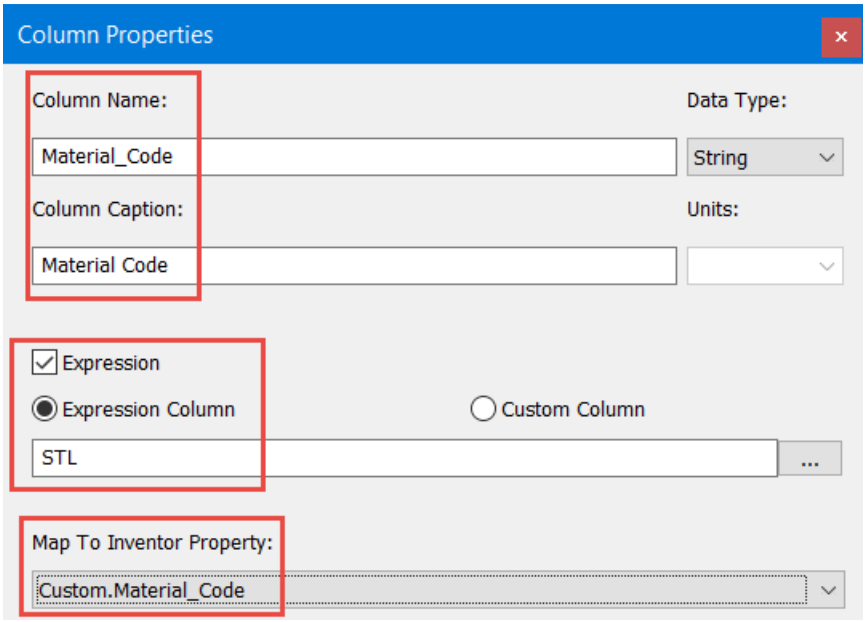


REPLACING THE FAMILY TEMPLATE SUCCESSFULLY COMPLETES

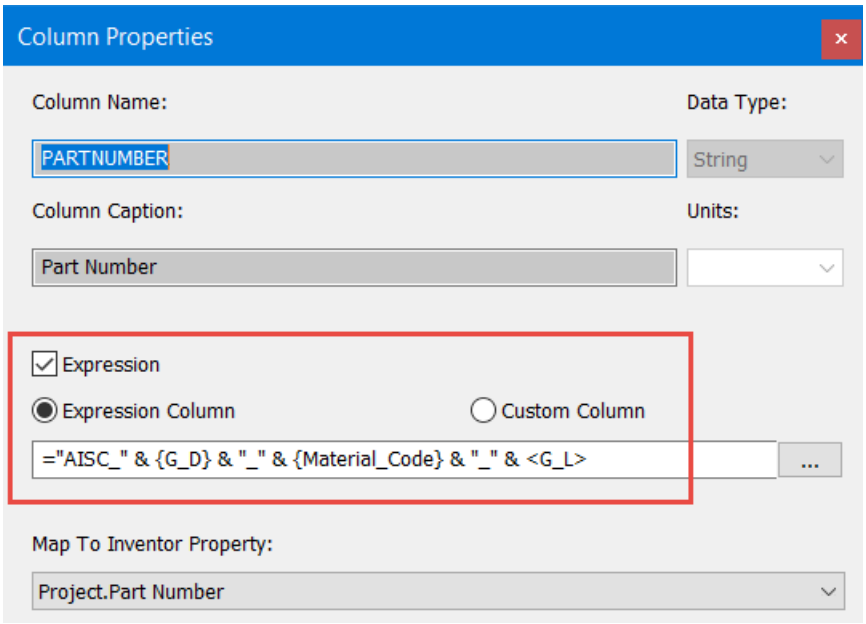
After successfully replacing the family template, we can put the new values to use by creating a new column and then modifying the part number to utilize the new column and the fractional feet & inches length value.



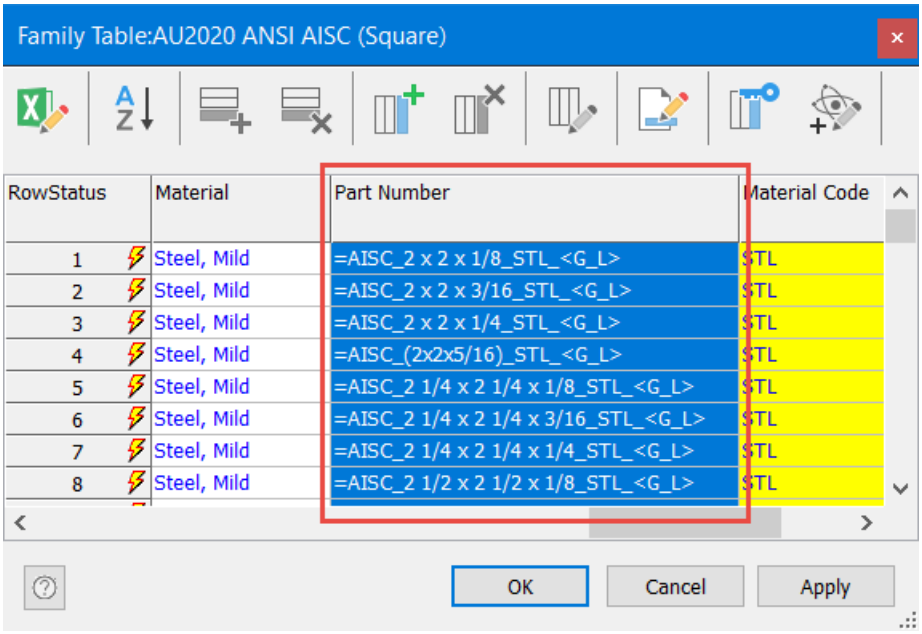
*EDIT THE FAMILY TABLE AND RIGHT-CLICK ON THE PART NUMBER COLUMN AND CHOOSE **ADD COLUMN***



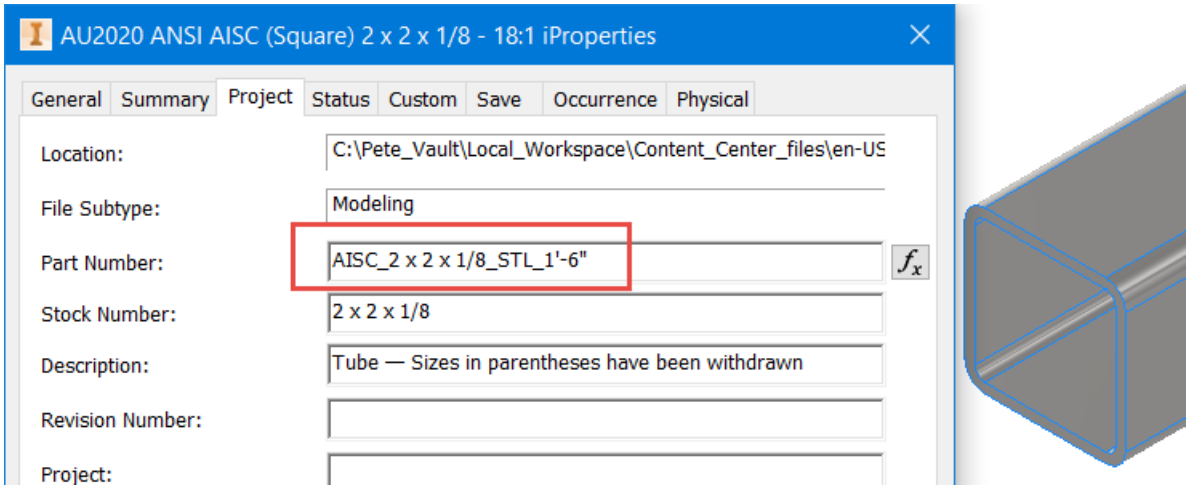
CONFIGURE THE COLUMN PROPERTIES, ENSURING THAT PROPERTY IS MAPPED TO THE NOW AVAILABLE "MATERIAL_CODE" CUSTOM IPROPERTY



*EDIT THE COLUMN PROPERTIES TO INCLUDE THE "MATERIAL_CODE" AND THE "G_L" VALUES. TO USE THE "G_L" PARAMETER, THE TEXT STRING MUST BE ENCLOSED BY "**<G_L>**"*



THE RESULTING COLUMN TEXT WILL LOOK STRANGE, BUT THE CORRECT VALUES WILL BE PASSED TO THE PLACED CC FILES



THE RESULTING PLACED CC PART WITH ALL THE DESIRED MODIFICATIONS

Using the **Replace Family Template** tool allows us to make critical changes to the model that can then be utilized within the family table, as we demonstrated above. All the techniques that have been demonstrated in this section will allow the customization of the out-of-the-box CC families, enhancing their value to everyone.

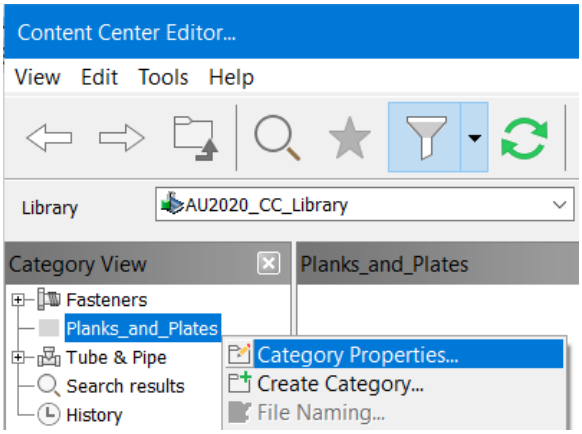
Publishing new Content Center Families

In the previous section, we covered several techniques that will allow customizations to the out-of-the-box CC families, greatly enhancing their utility. Eventually, however, the need will arise to add new families that are specific to each design department requirements. In this section, we'll cover the information required to add author and publish new families to the Content Center.

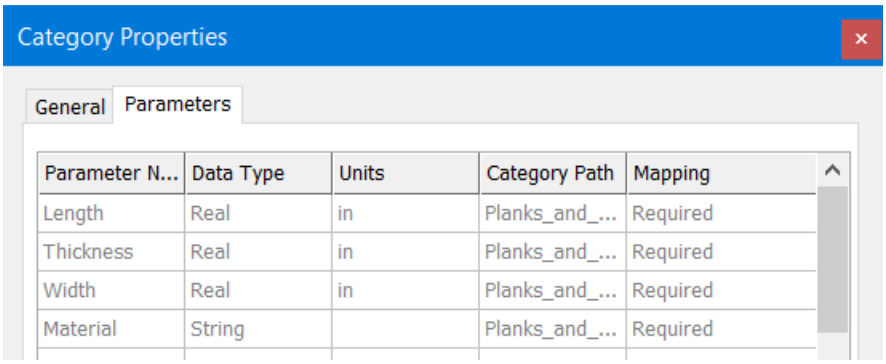
Publishing standalone components

The CC is a great place central location that is relatively easy to manage that can store components that the design department uses all the time. Ideally components stored in the CC shouldn't change much, or if changes are possible, those changes must be applied in a controlled fashion. Therefore, CC probably isn't the right place for highly customized designs (there are other better ways to manage those types of components) and we'll focus on single parts that can have some controlled variation.

When publishing to the CC, one must make some important decisions. First, one must determine which CC category to publish to. As we saw in the first section of the report, each category has a unique roster of required and optional properties. In this example, we'll utilize the "Planks and Plates" family from earlier and verify the required properties.

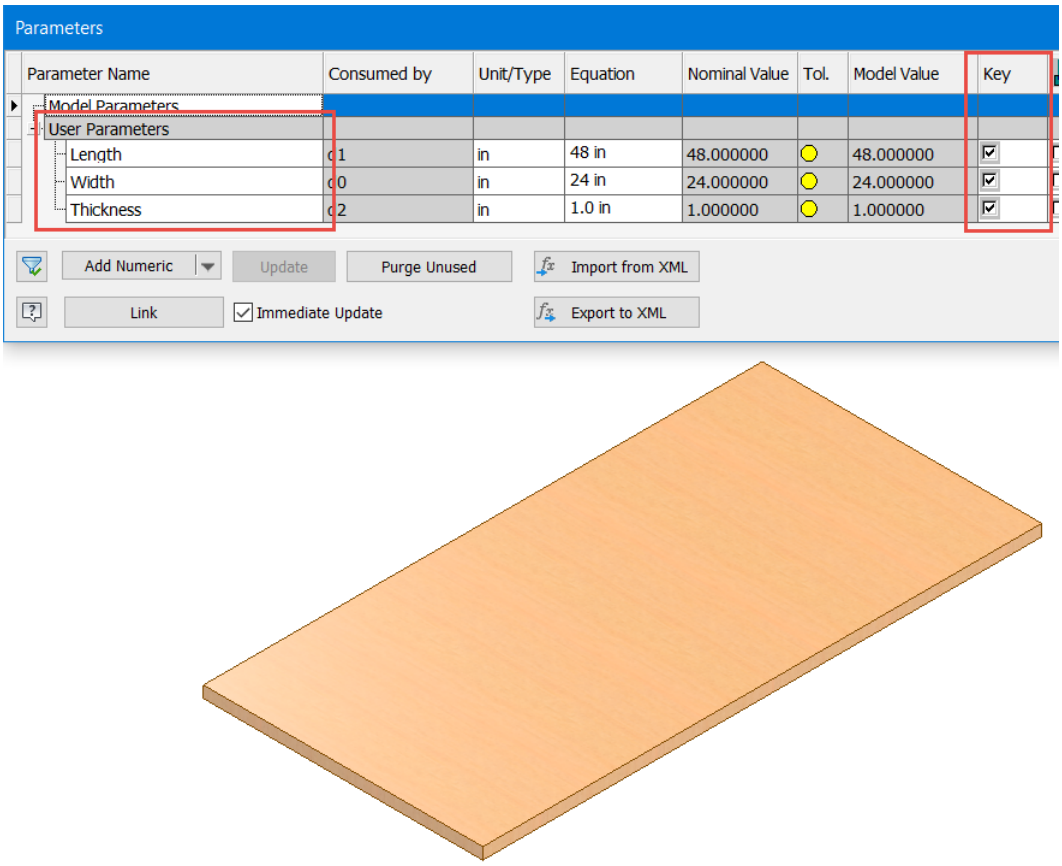


*RIGHT-CLICK ON THE CATEGORY TO ACCESS THE **CATEGORY PROPERTIES***



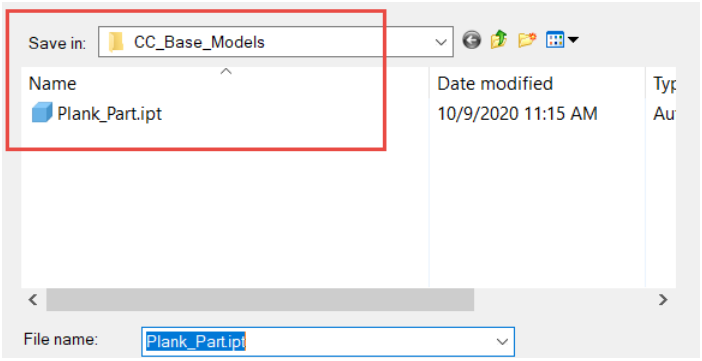
THE PARAMETERS THAT ARE REQUIRED

The component that is to be published must have parameter values that will eventually line up with the requirements of the target category. In this example, since the “Material” is a required property, we’ll also utilize the material selection from the material library.



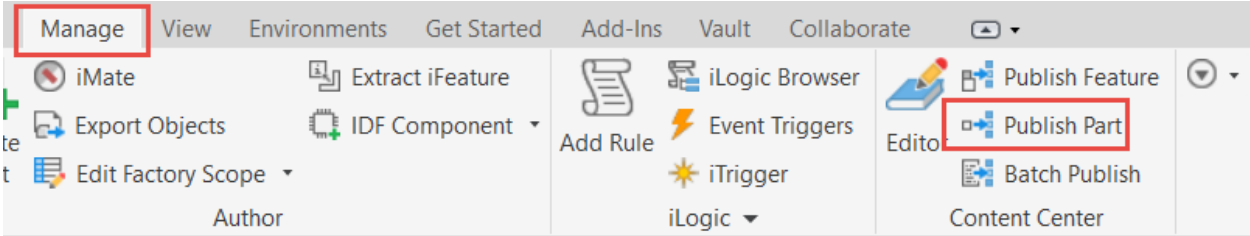
SAMPLE WOOD PLANK COMPONENT WITH THE WOOD MATERIAL ASSIGNED AND KEY USER PARAMETERS PRESENT

IMPORTANT NOTE: I strongly recommend creating a folder and storing all the base models used for publishing to the CC. This way, if wholesale modifications are required during testing or if I need to publish a one-off version, the original model can greatly expedite those operations.

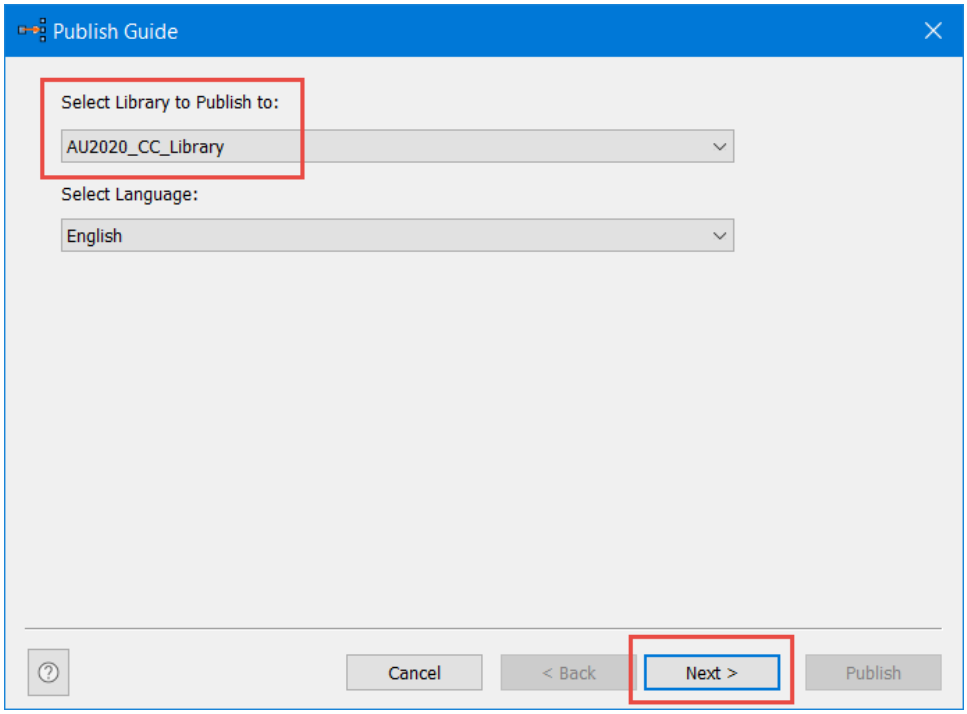


SAVE THE CC BASE MODELS FOR FUTURE USE AND EDITS

Once the component has been prepared with the material assignment and parameter generation, the time has come to publish the component. Since we're using the custom category that was created earlier, there are not any additional authoring requirements. If one wishes to publish a component for a Design Accelerator, such as Tube & Pipe, special features need to be authored and we'll cover that scenario later in this presentation. For every component that gets published to CC, the process is the same and I'll demonstrate the process in the following steps.

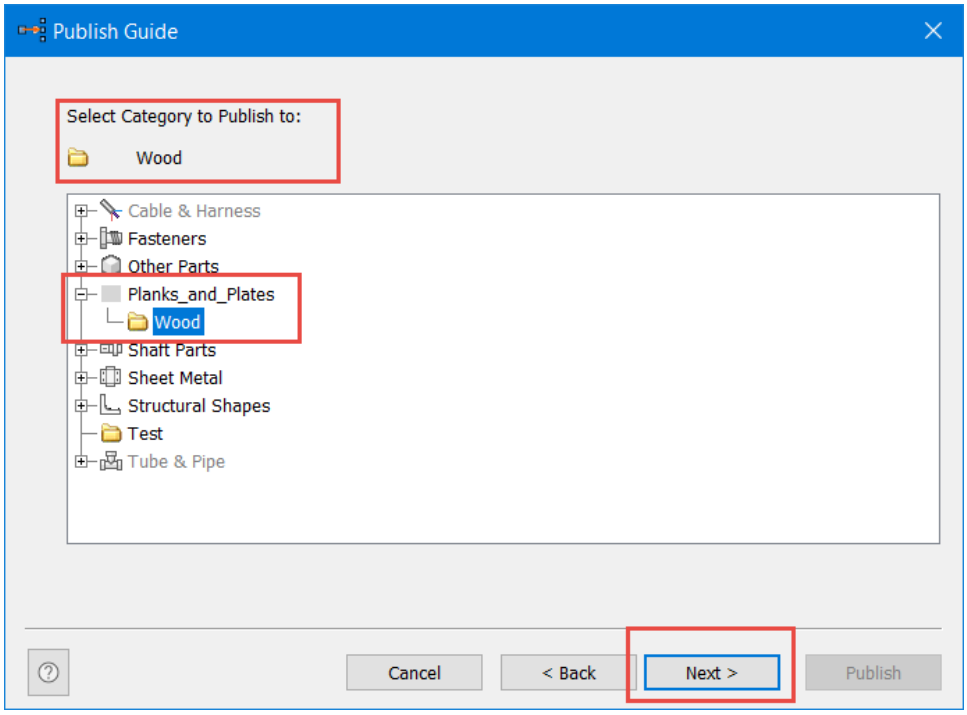


*ACCESS AND LAUNCH THE **PUBLISH PART** TOOL*

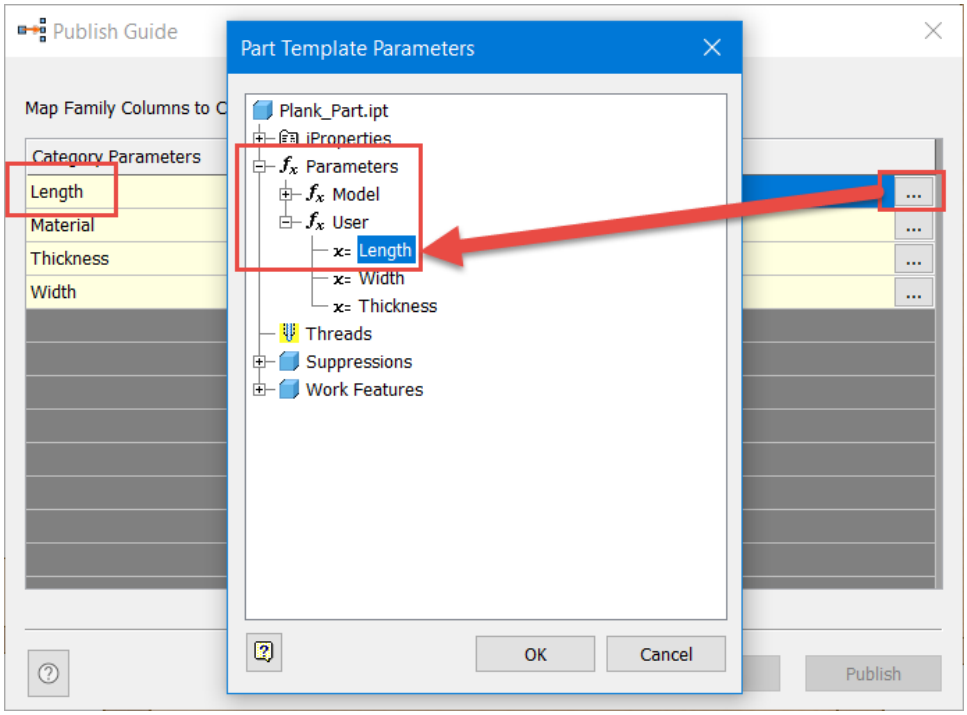


CHOOSE THE DESIRED CUSTOM LIBRARY

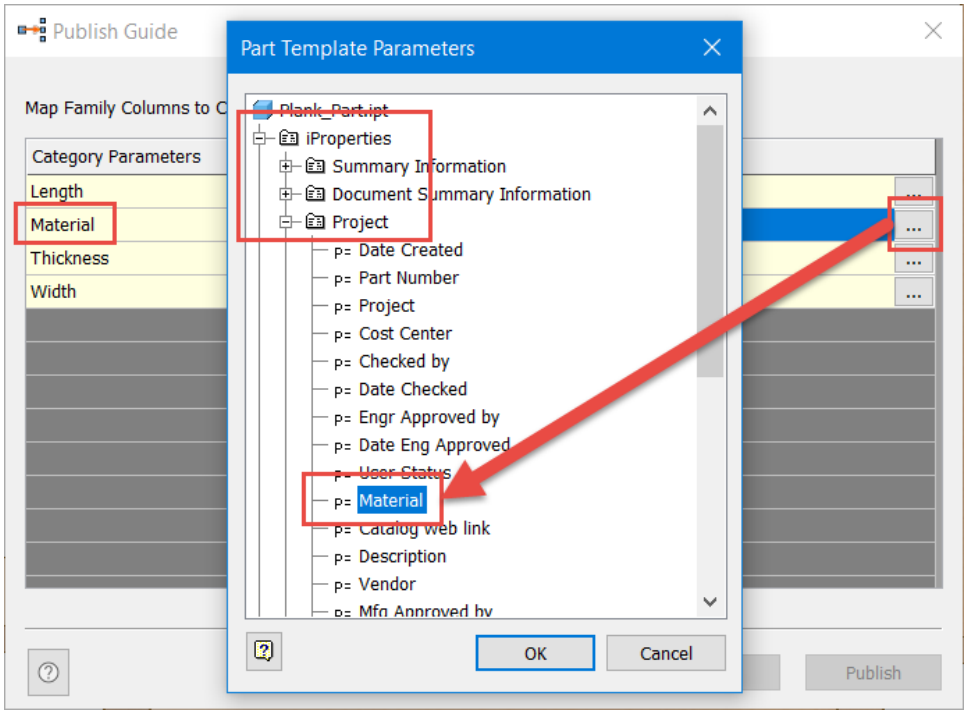
IMPORTANT NOTE: One can utilize more than one custom CC library. A library can be created for all piping components and a separate library for hardware, for example. Be sure to choose the proper library when publishing to CC!



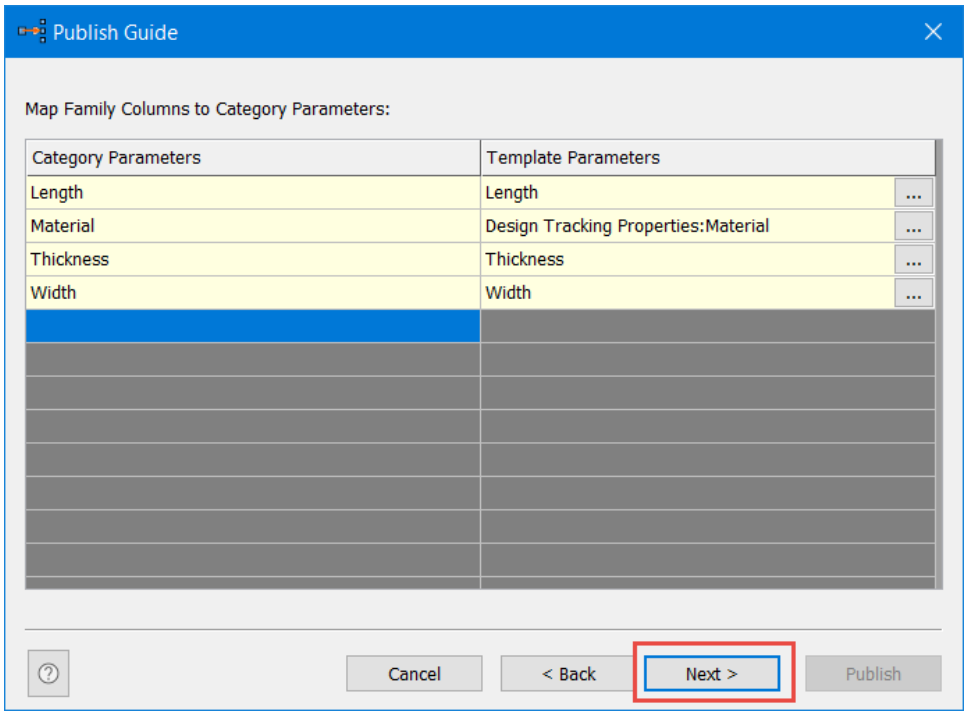
CHOOSE THE DESIRED CATEGORY



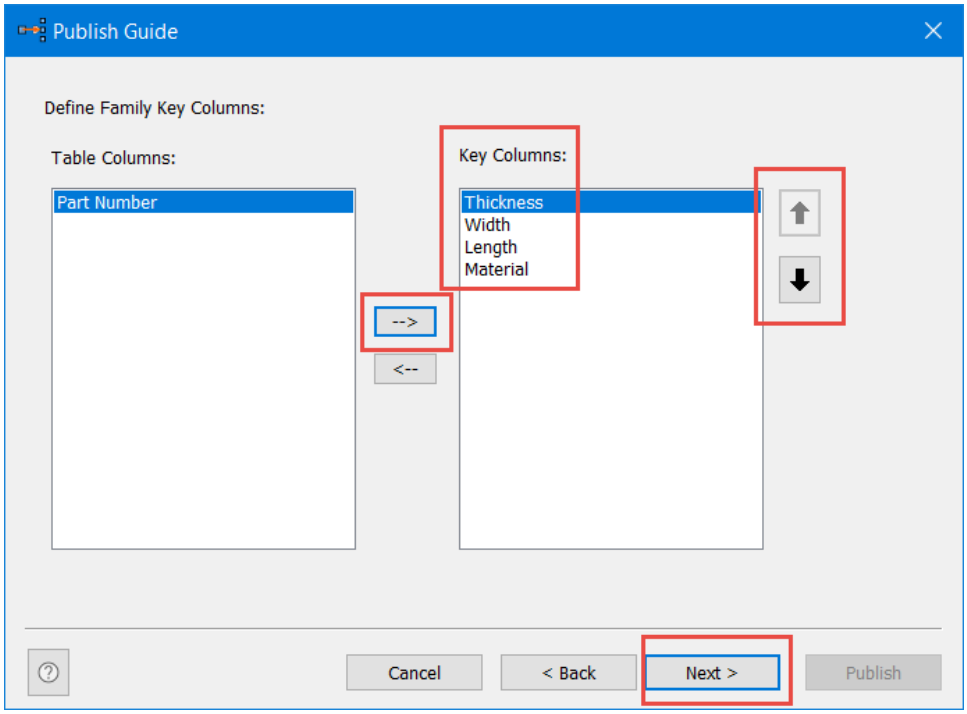
LINK EACH REQUIRED PROPERTY TO THE CORRESPONDING PARAMETER



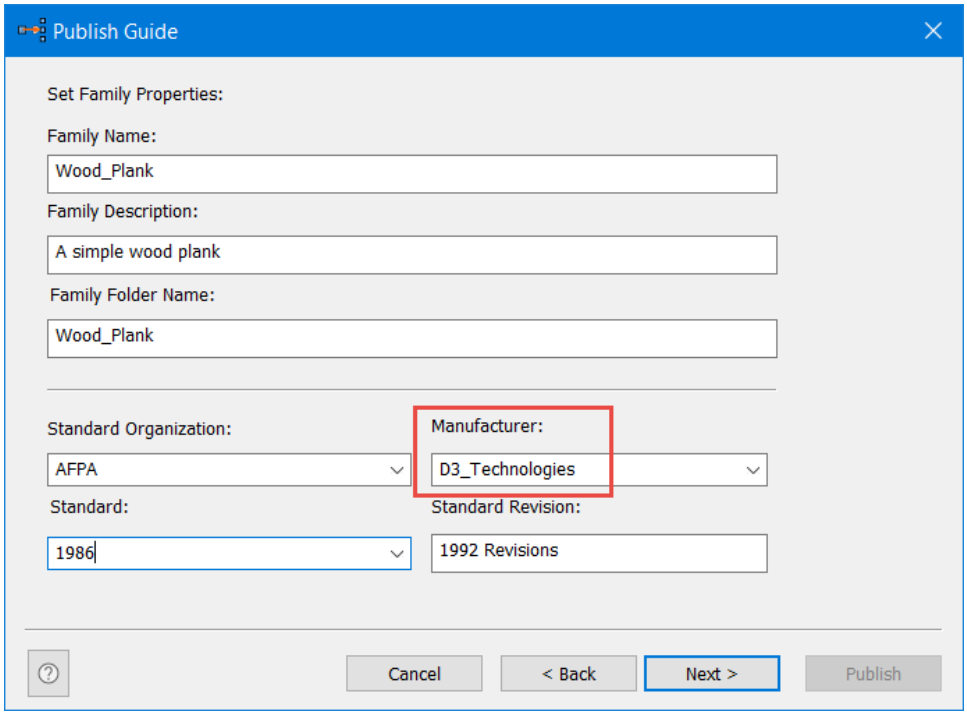
FOR CERTAIN CATEGORY PROPERTIES ONE MUST MAP TO COMPONENT IPROPERTIES, SUCH AS THE MATERIAL IN THIS EXAMPLE



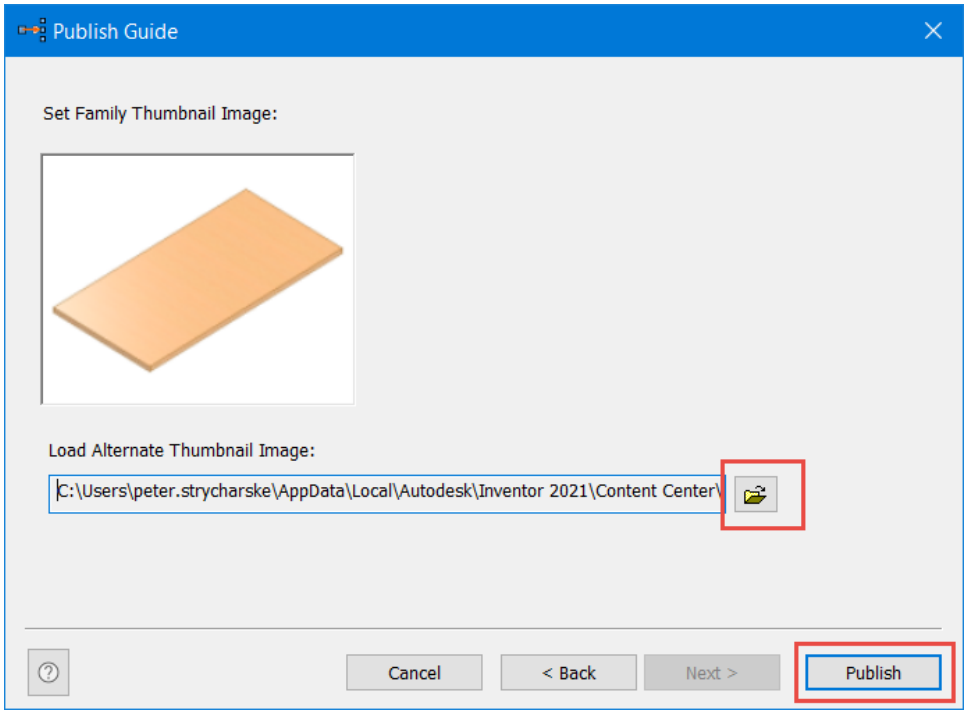
MAP ALL THE PARAMETERS



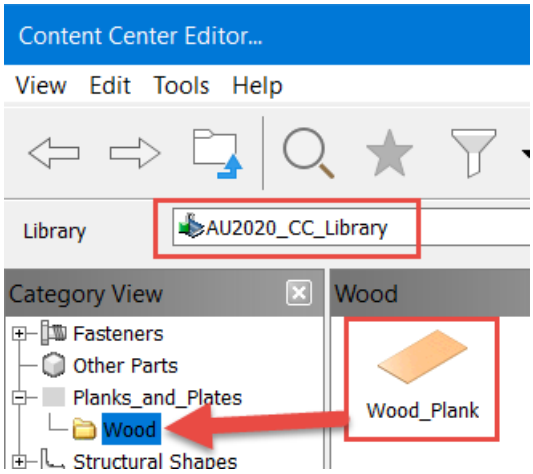
ADD AND ORGANIZE KEY COLUMNS TO AID DESIGNERS IN MAKING EFFICIENT CC COMPONENT SELECTIONS



CONFIGURE THE FAMILY PROPERTIES AS DESIRED. LISTING YOUR COMPANY NAME AS THE "MANUFACTURER" WILL AID IN BUILDING FILTERS LATER ON

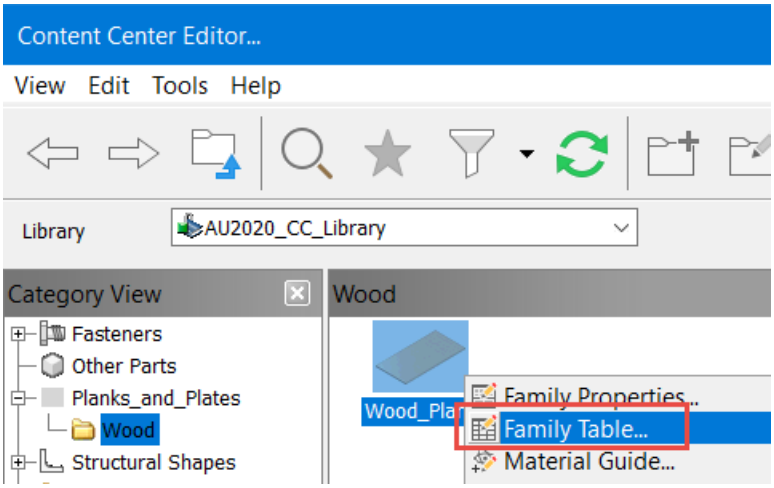


CHANGE THE THUMBNAIL IMAGE, IF DESIRED, AND PUBLISH THE COMPONENT TO CC

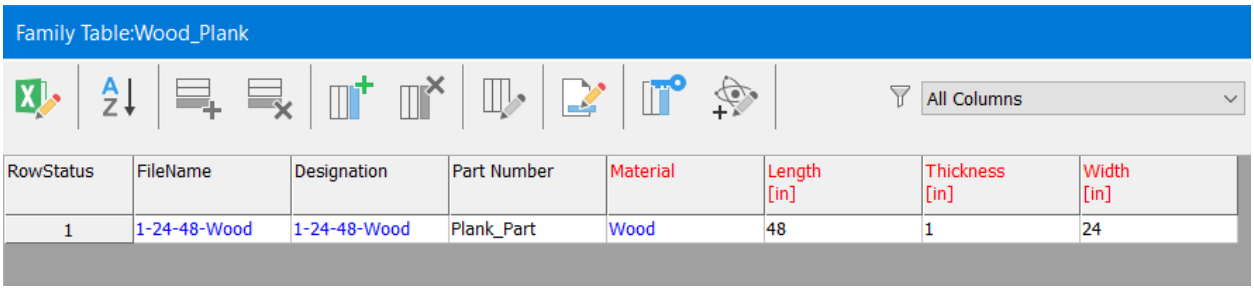


RESULTING FAMILY IS CREATED BY THE PUBLISH PROCESS

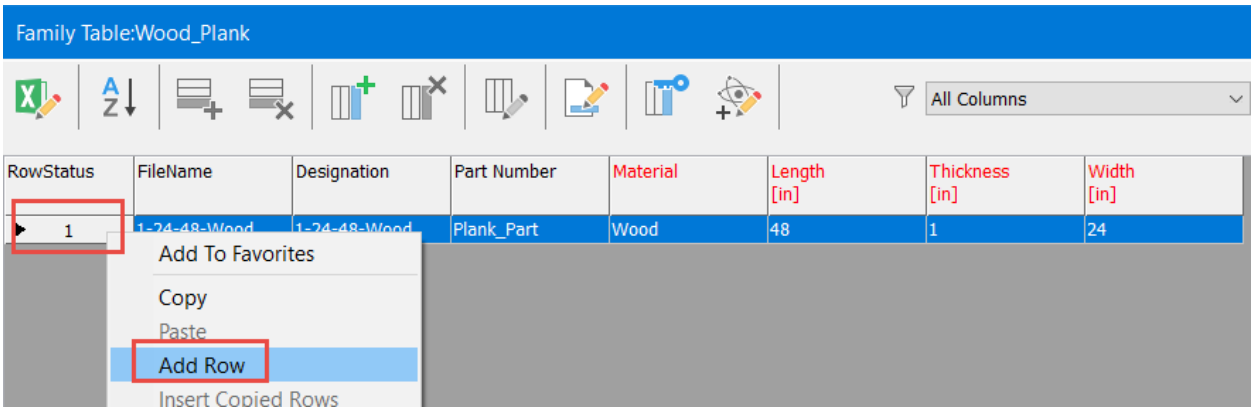
So, with the first important decision made and component published to the desired CC category we must turn our attention to the next important question, what do we want designers to modify? CC files can be manipulated in one of two ways by a designer, either by selecting a particular version or modifying specific properties on the fly. The first option is made available by creating new rows within the family table either via Excel or inside the family table itself. Since we've already looked at editing a family table with Excel, we'll focus on creating a new row within the table.



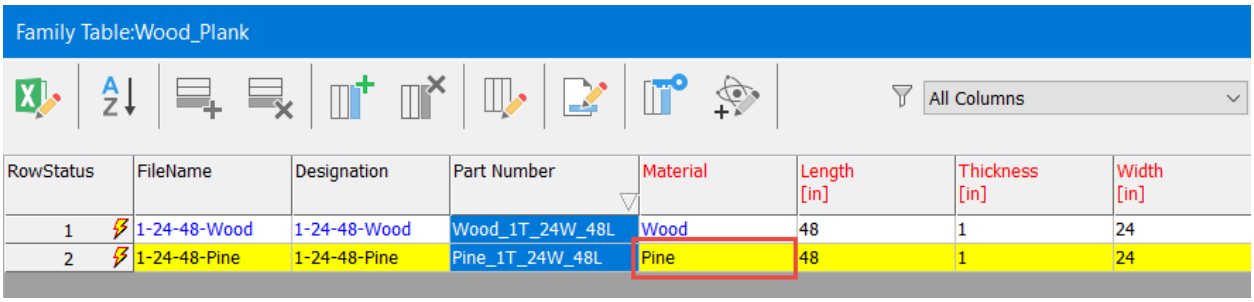
*ACCESS THE **FAMILY TABLE** FOR THE NEWLY PUBLISHED COMPONENT*



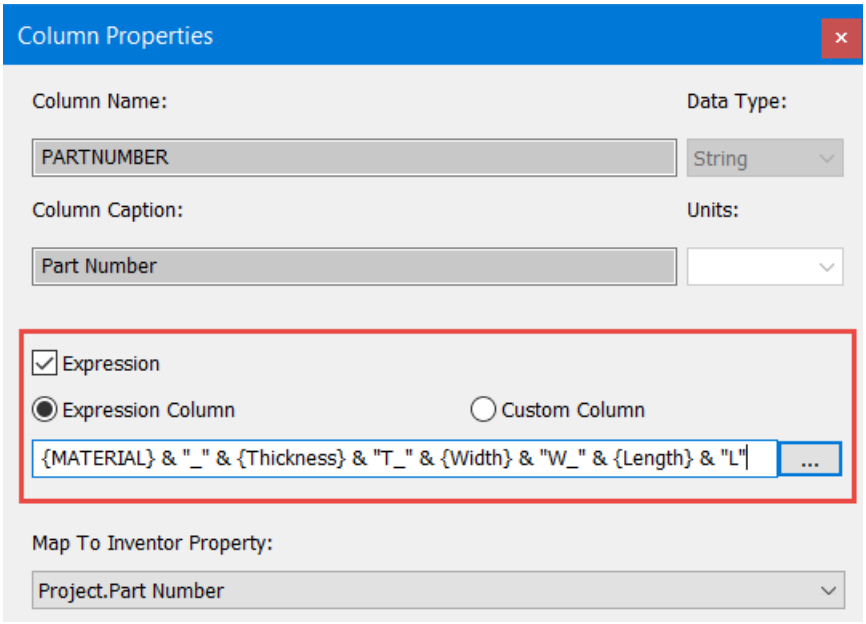
THE INITIAL ROW GENERATED FROM THE PUBLISH PROCESS



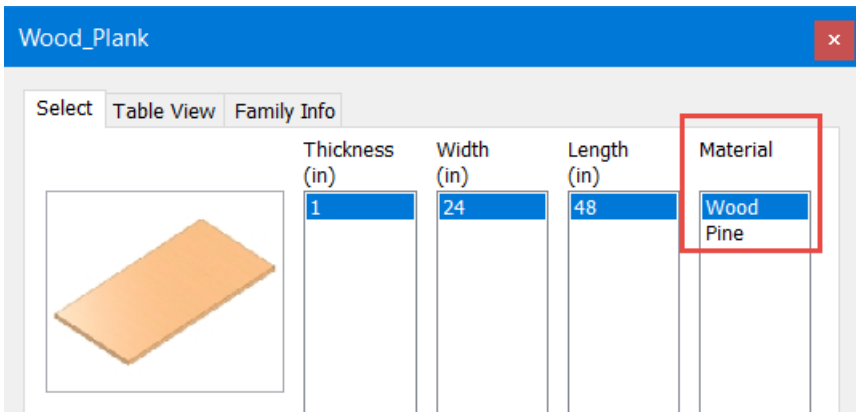
RIGHT-CLICK ON THE ROW INDICATOR TO ADD A NEW ROW



CHANGE THE MATERIAL TO "PINE" IN THE NEW ROW AND USE IDENTICAL SIZING VALUES. NOTE TO GAIN ACCESS TO THE "PINE" MATERIAL ONE WILL HAVE TO UTILIZE THE "AUTODESK MATERIAL LIBRARY"

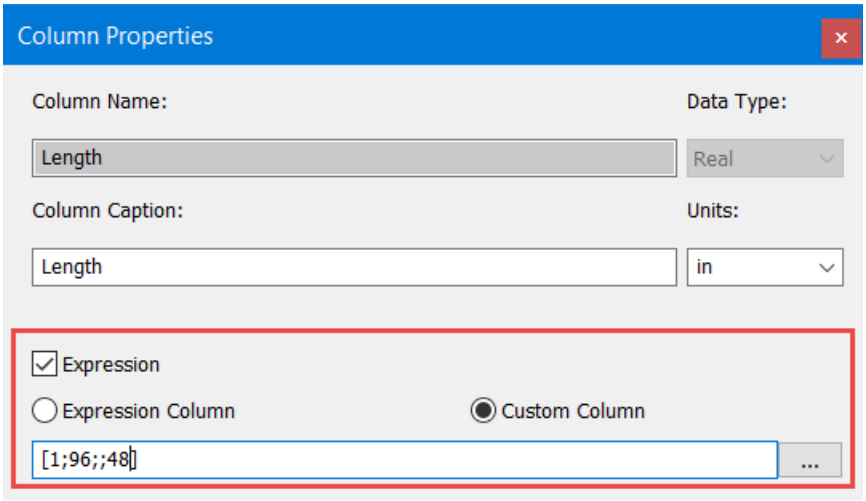


IF DESIRED ONE CAN ALSO UPDATE THE PART NUMBER COLUMN PROPERTIES

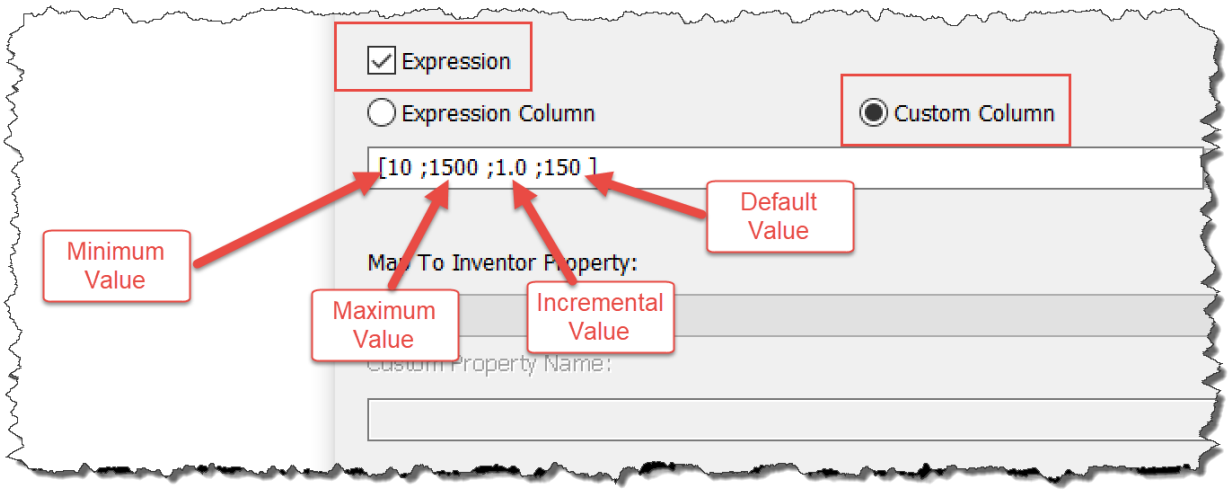


THE RESULTING SELECTION OPTIONS WHEN PLACING THE COMPONENT FROM THE CC

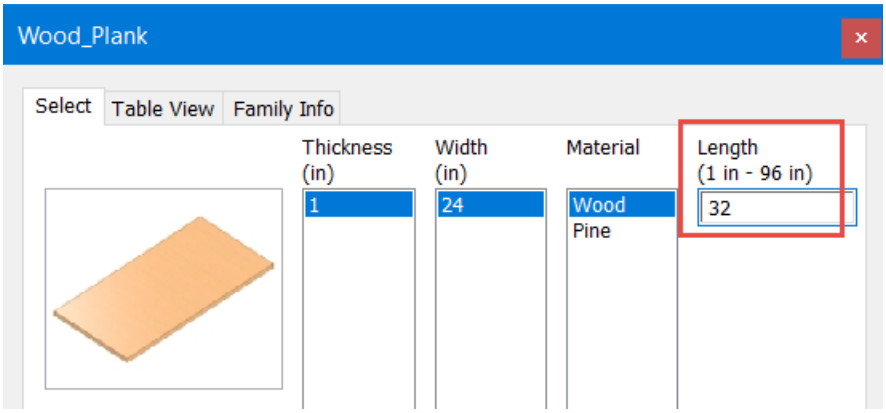
Besides simply choosing a configuration based on existing rows within the table, we can also provide designers the option to edit certain values when placing the component. Again, to reiterate, for CC this must be a controlled process and should be limited in scope. If changing the width of a component impacts the length of the component, and other such changes, this component is also not well suited to the CC. In our example, we'll allow the designers to modify the length of the plank when placing from CC. To accomplish this, we'll have to utilize a custom column for the "Length" column.



ACCESS THE COLUMN PROPERTIES FOR THE LENGTH AND CREATE A CUSTOM COLUMN EXPRESSION



A CUSTOM COLUMN EXPRESSION PROVIDES CONTROLS OVER THE VALUES THAT DESIGNERS CAN ASSIGN DURING CC FILE PLACEMENT



THE RESULTING PLACEMENT OPTIONS WHEN USING A CUSTOM COLUMN EXPRESSION

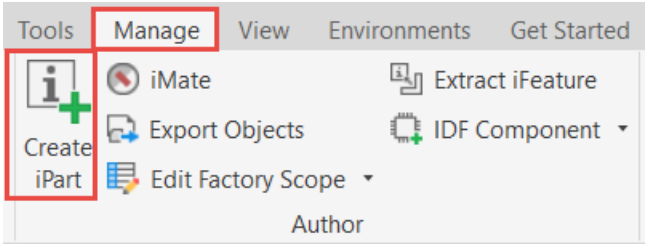
By allowing designers to choose different configurations and controlled manipulation of property values, CC parts become much more flexible to fit a variety of design situations. So even singular components can be greatly expanded after being published to the CC.

Publishing iParts

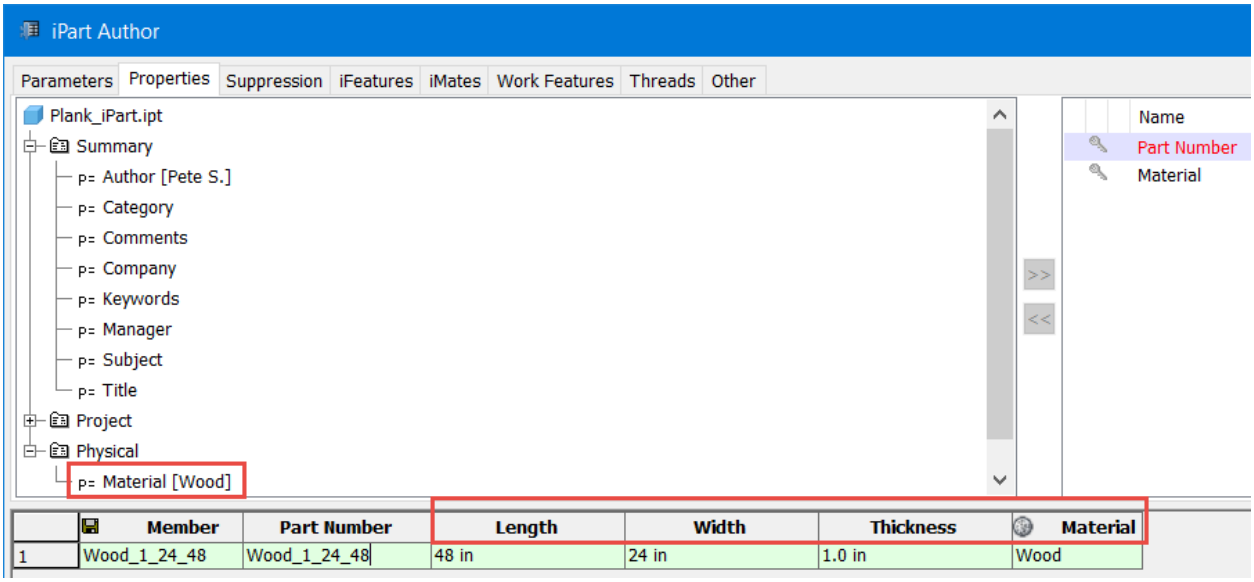
Sometimes we have LOTS of rows to add or many properties to keep track of, so the publishing process can take advantage of iParts when building CC families. iParts are a great way to quickly build lots of component configuration because iParts contain an embedded Excel table that preserves any Excel functions.

Some design groups use iParts independent of the CC, but these can also be published to the CC for a more centralized approached to managing these components and helping to enforce more consistent design practices. There are also some advantages to switching to the CC from a computer performance standpoint, which is covered in a previous AU class “Making the Content Center Do More for You”, which I’ve linked in Appendix B.

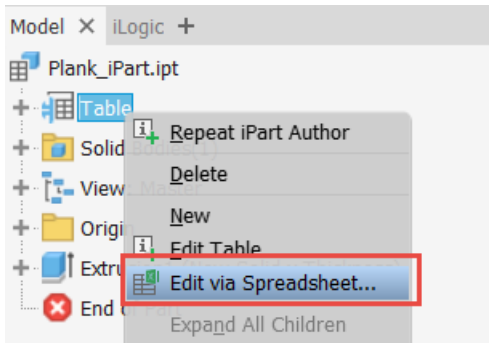
In this example, we’ll look at rapidly adding data to our Wood Plank component via an iPart table and discuss some additional steps that will improve the publishing process.



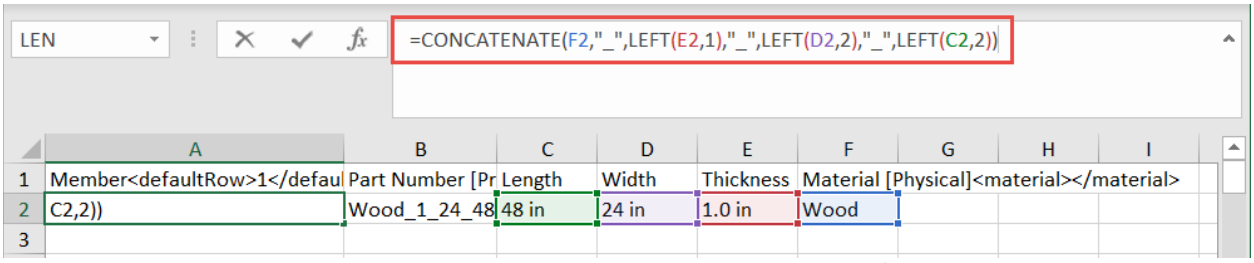
CREATE A NEW IPART



FULLY CONFIGURE THE FIRST ROW OF THE IPART TABLE



CLOSE OUT OF THE IPART TABLE AND THEN EDIT THE TABLE WITHIN EXCEL



*USE THE **CONCATENATE** FUNCTION TO BUILD A MORE COMPLEX TEXT STRING (ALONG WITH OTHERS SUCH AS **LEFT**), UTILIZING THE PROPERTIES FROM THE IPART TABLE*

A5 =CONCATENATE(F5,"_",LEFT(E5,4),"_",LEFT(D5,2),"_",LEFT(C5,2))

	A	B	C	D	E	F	G	H	I
1	Member<defaultRow>1</defaul	Part Number [Project]	Length	Width	Thickness	Material	Physical]<material></materi		
2	Wood_1_24_48	Wood_1_24_48	48 in	24 in	1.0 in	Wood			
3	Wood_1_12_48	Wood_1_12_48	48 in	12 in	1.0 in	Wood			
4	Wood_1_18_48	Wood_1_18_48	48 in	18 in	1.0 in	Wood			
5	Wood_0.75_24_48	Wood_0.75_24_48	48 in	24 in	0.75 in	Wood			
6	Wood_0.75_12_48	Wood_0.75_12_48	48 in	12 in	0.75 in	Wood			
7	Wood_0.75_18_48	Wood_0.75_18_48	48 in	18 in	0.75 in	Wood			

BUILD OUT THE REST OF THE EXCEL TABLE USING ROW "DRAGS" AND COPY / PASTE FUNCTIONALITY

iPart Author

Parameters | Properties | Suppression | iFeatures | iMates | Work Features | Threads | Other

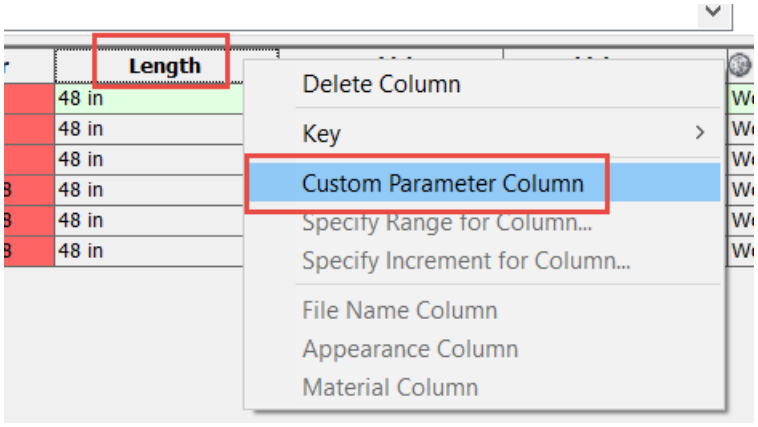
Plank_iPart.ipt
- Extrusion1
  - x= Length [48 in]
  - x= Thickness [1.0 in]
  - x= Width [24 in]
  - x= d0 [Width]
  - x= d1 [Length]
  - x= d2 [Thickness]

Name
Length
Width
Thickness

	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

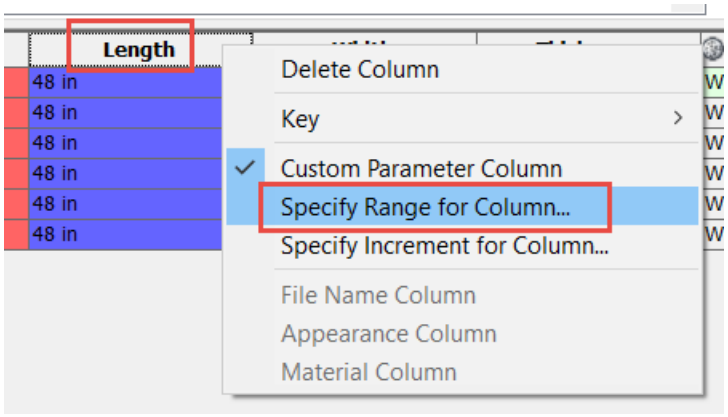
EXCEL EDIT RESULTS ARE REFLECTED IN THE IPART TABLE, WITH EXCEL DRIVEN VALUES SHOWN WITH REDDISH COLORED CELLS

Editing iParts with Excel makes the process of adding more versions very efficient, but we can also prep the iPart to allow for controlled parameter controls, via the use of a "Custom Parameter Column". In this example, we'll provide designers with the ability to change the length, in similar fashion to placing from the Content Center. In fact, the controls we add to the iPart "Custom Parameter Column" can be used to populate the "Custom Column Expressions" information when publishing to the CC.

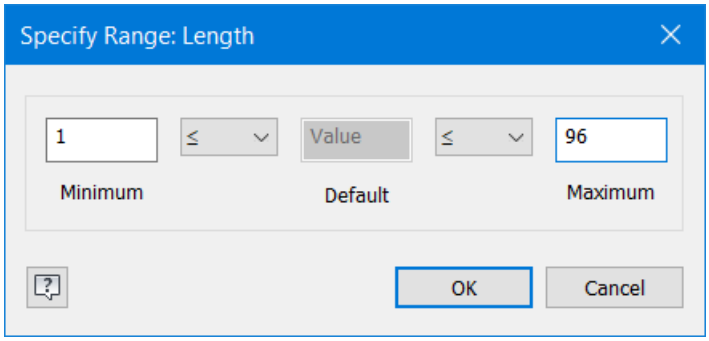


*RIGHT-CLICK ON THE LENGTH IPART COLUMN HEADER AND SELECT THE **CUSTOM PARAMETER COLUMN** OPTION*

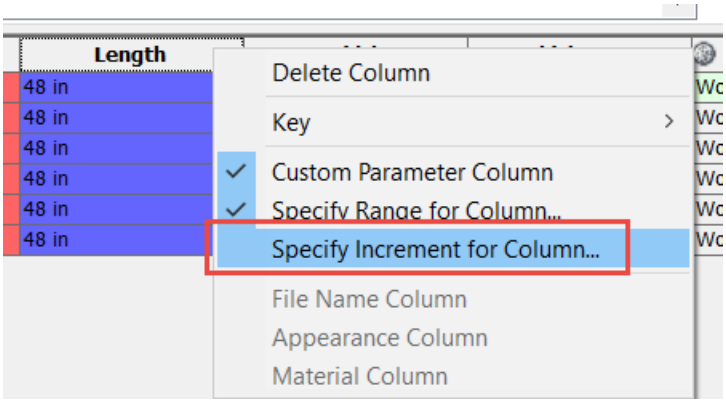
Setting the column to be a **Custom Parameter Column** will allow designers to place customizable iParts, so the best practice is to apply some controls to these values.



*RIGHT-CLICK ON THE LENGTH COLUMN AND SELECT THE **SPECIFY RANGE FOR COLUMN** OPTION*

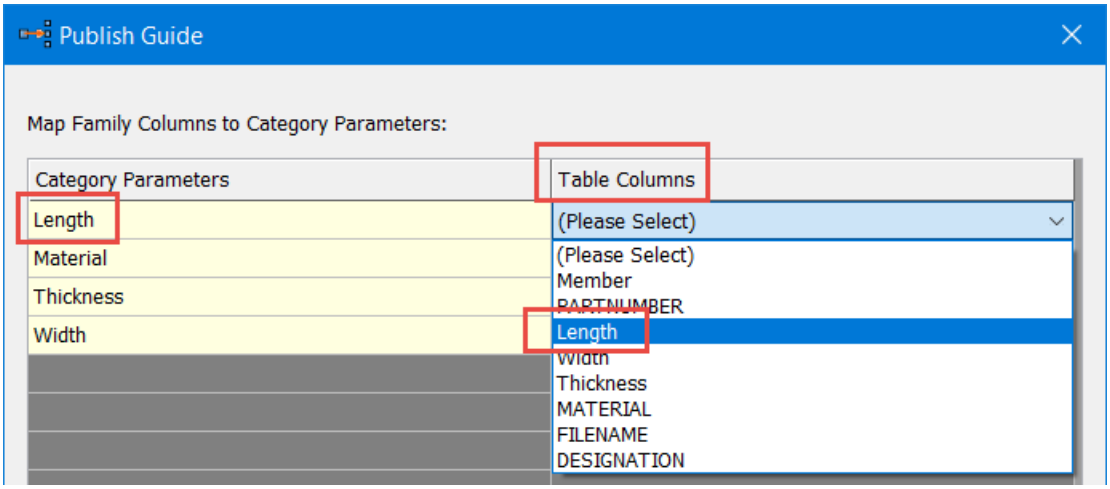


SET THE RANGE OF ACCEPTABLE VALUES FOR THE LENGTH

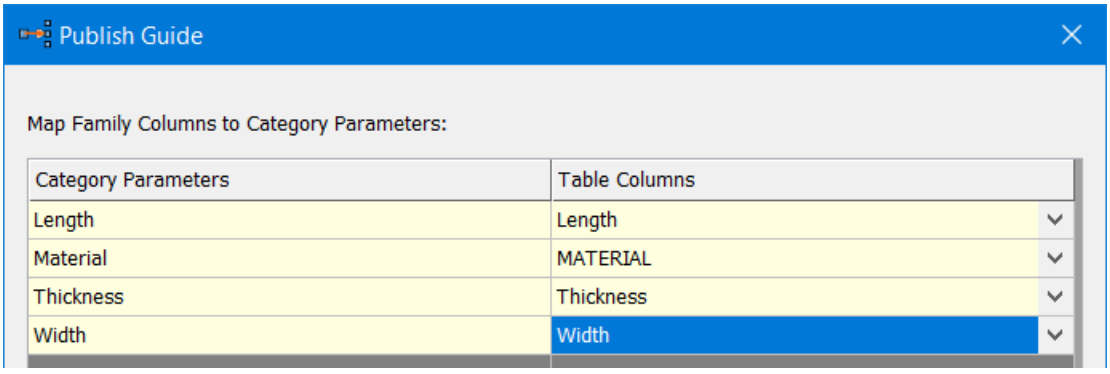


(OPTIONAL) SET AN INCREMENT VALUE FOR SIZING, EVERY ¼ INCH FOR EXAMPLE

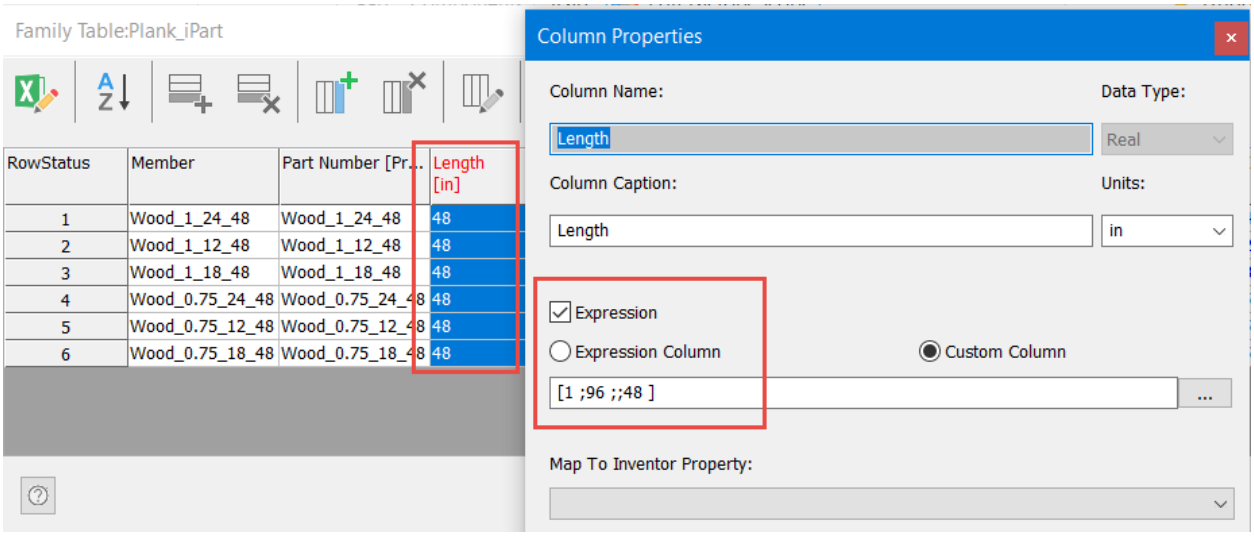
Once the iPart table has been completed the part can be published to the Content Center with the same procedure as the standalone component. The only difference is that we'll be mapping the CC category properties to iPart columns.



UTILIZE IPART COLUMNS WHEN MAPPING TO CC CATEGORY PROPERTIES



COMPLETED IPART COLUMN TO CC CATEGORY MAPPING



THE RESULTING PUBLISHED FAMILY, BASED ON THE IPART

Configuring an iPart table is an excellent way to configure components for CC publishing and in some cases the only way, such as a Tube & Pipe house. The "Custom Parameter Column" also translates directly into a "Custom Column Expression" in the CC family.

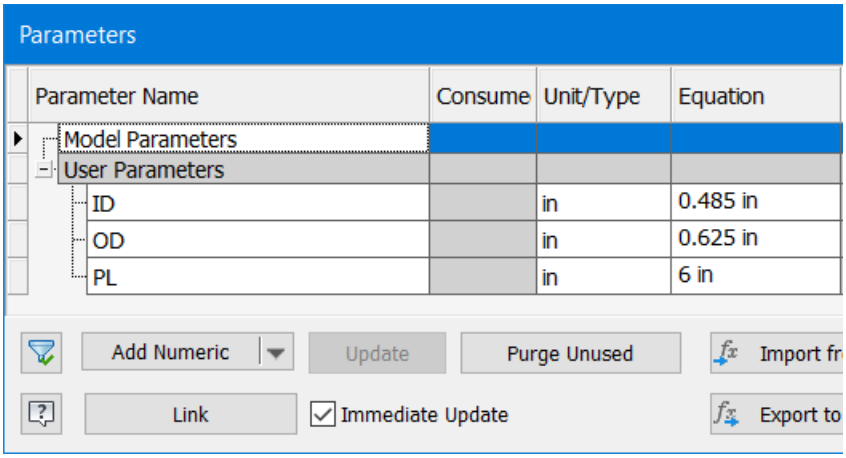
Authoring components for special usage

For some of the design accelerators and CC categories, there are special characteristics that need to be applied to components prior to publishing to CC, as the publishing process will be the same as for standalone and iParts.

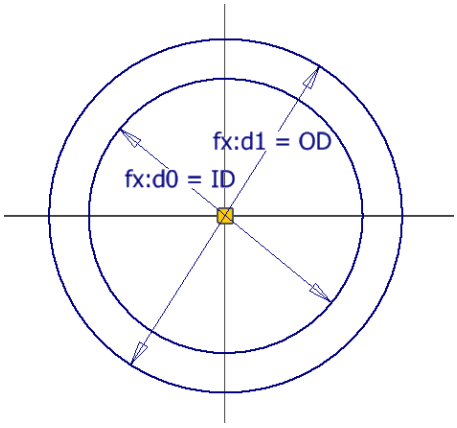
In this section we'll look at an example from the Tube & Pipe environment and in Appendix A I'll include a video one from the Frame Generator.

Tube & Pipe components are essential for creating piping runs and like other CC components, the initial library components are a nice start, but nowhere near enough to complete most designs. Therefore, perhaps more than any other design accelerator, components will need to be published to CC before this module becomes truly effective. We'll tackle a custom hose component to demonstrate the authoring process.

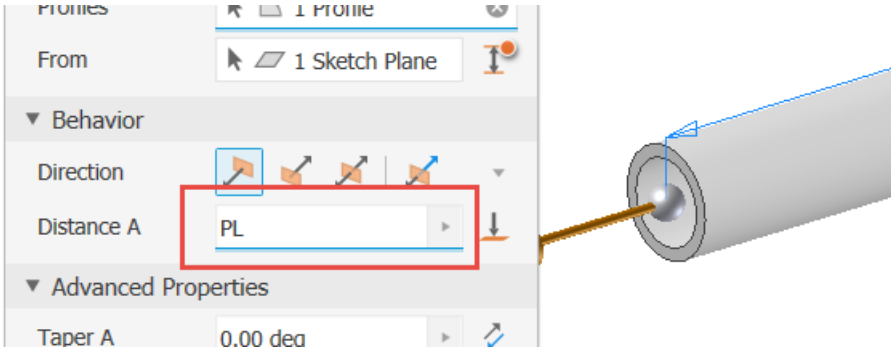
Any tubular component can be a candidate, but there must be certain parameters inside the model and most importantly, the component **MUST** be an iPart to be published as a hose, pipe or formed tube.



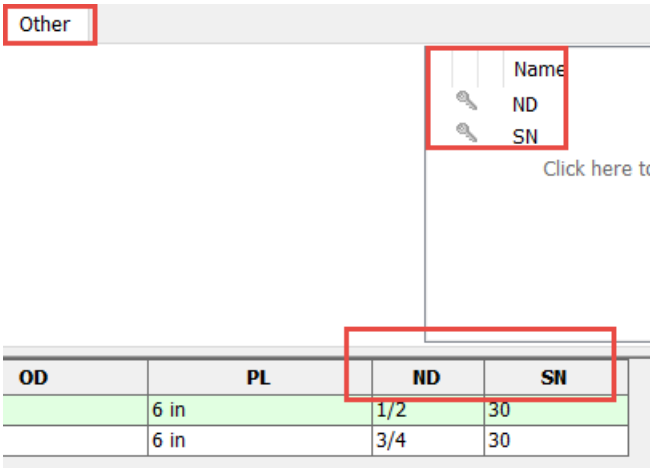
CREATE THREE PARAMETERS: "ID" FOR INNER DIAMETER, "OD" FOR OUTER DIAMETER AND "PL FOR PART LENGTH



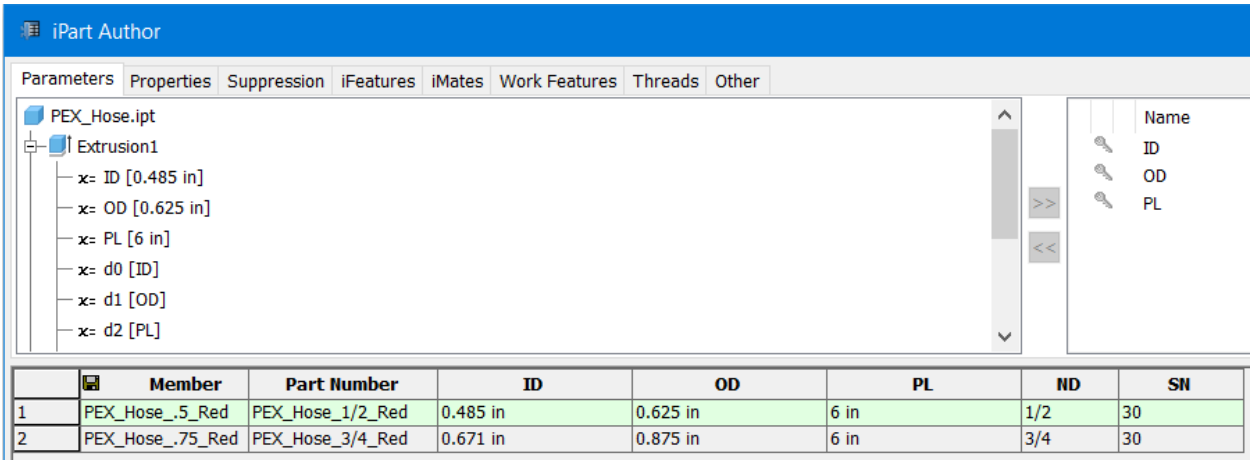
CREATE A TUBE SKETCH WITH THE "ID" AND "OD"



EXTRUDE THE TUBE SHAPE WITH A LENGTH OF PL

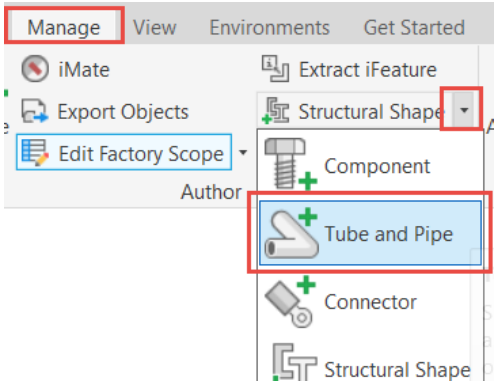


CREATE THE IPART TABLE AND ADD COLUMNS "ND" FOR NOMINAL DIAMETER AND "SN" FOR SCHEDULE NUMBER

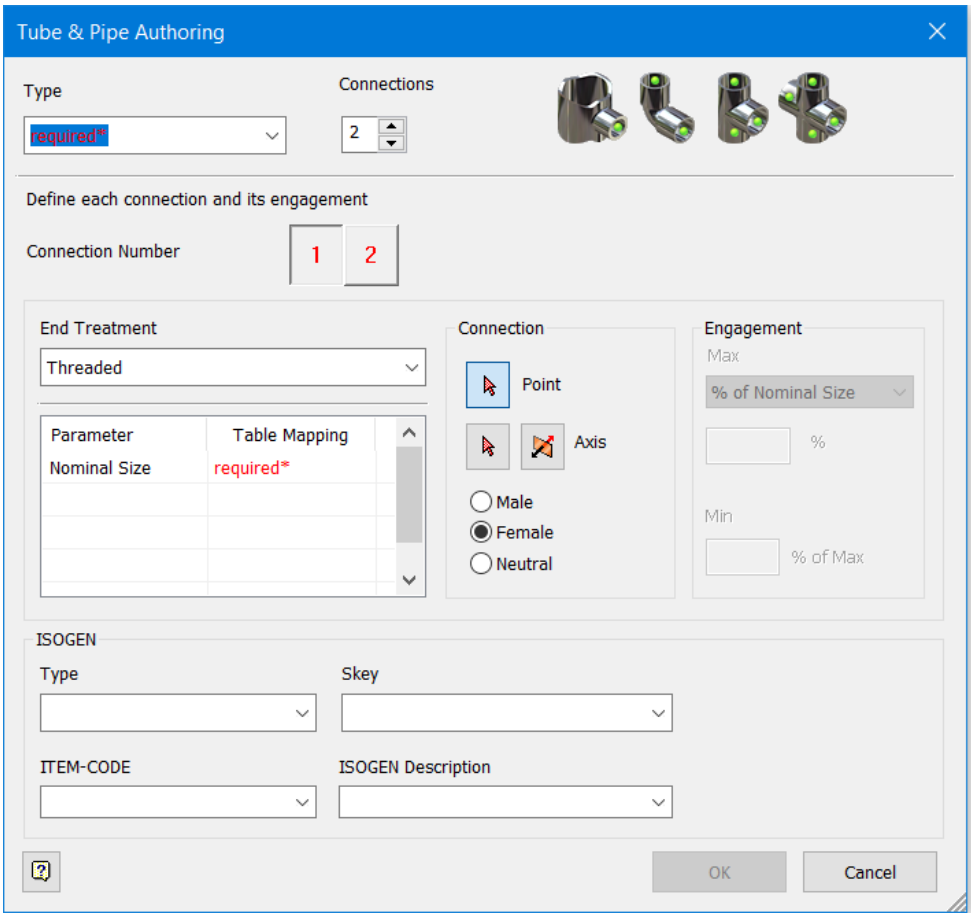


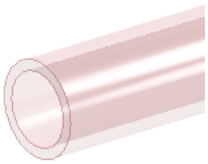
COMPLETE THE IPART TABLE AS DESIRED

Once the iPart Table has been completed, the Tube & Pipe authoring process begins. Each of the authoring tools will require different parametric and geometric inputs, based on the specific category.

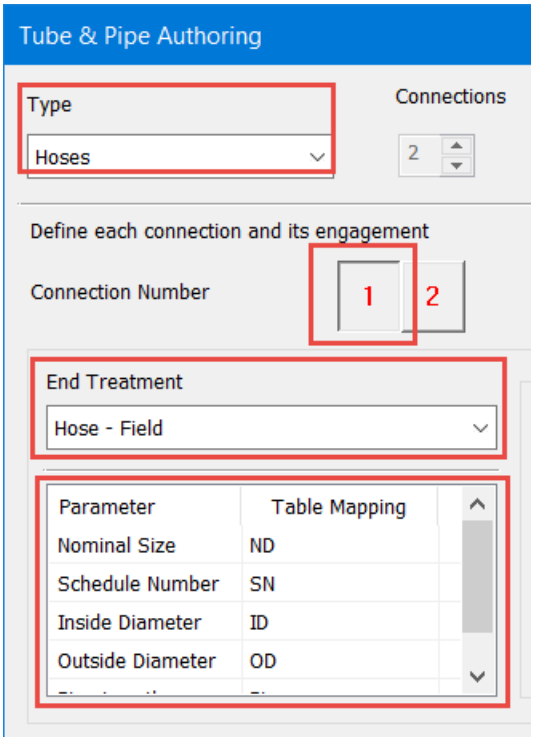


*SELECT THE **TUBE AND PIPE** AUTHORING TOOL*

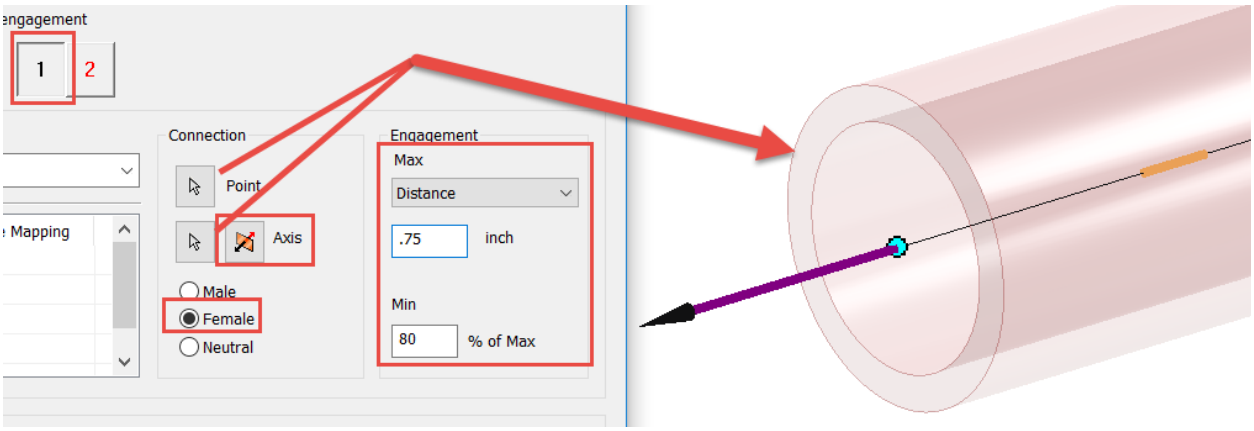




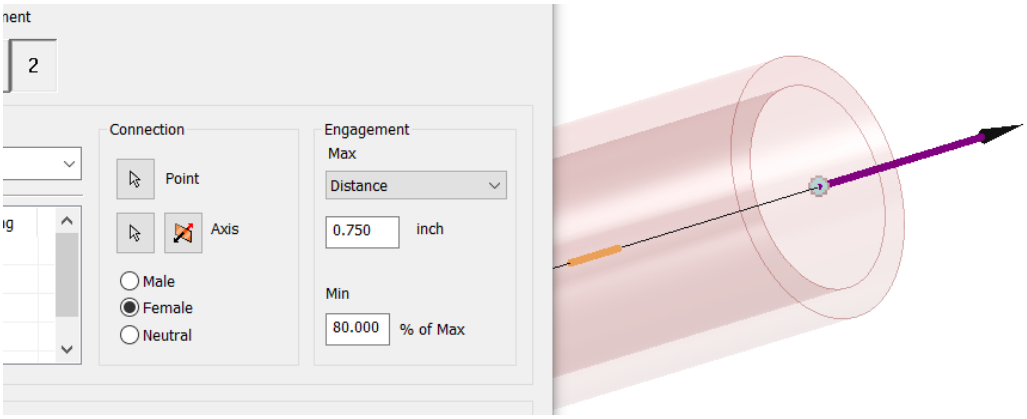
THE INITIAL TUBE & PIPE AUTHORING DIALOG



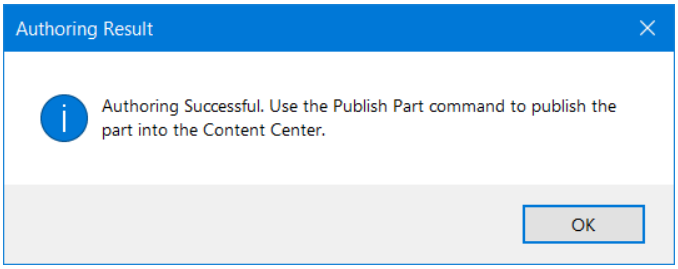
SET THE TYPE TO HOSE, ASSIGN AN END TREATMENT AND MAP ALL THE CORRESPONDING PARAMETERS TO IPART TABLE COLUMNS



DEFINE THE CONNECTION INFORMATION FOR SIDE 1, BY CHOOSING THE OUTER CIRCUMFERENCE AS THE CONNECTION POINT AND THE AXIS DIRECTION. FLIP THE AXIS, IF NEEDED, AND ASSIGN THE CONNECTION AS FEMALE, AS THE HOSE BARB WILL BE INSERTED INTO THE END OF THE HOSE. FINALLY SET UP THE ENGAGEMENT CRITERIA

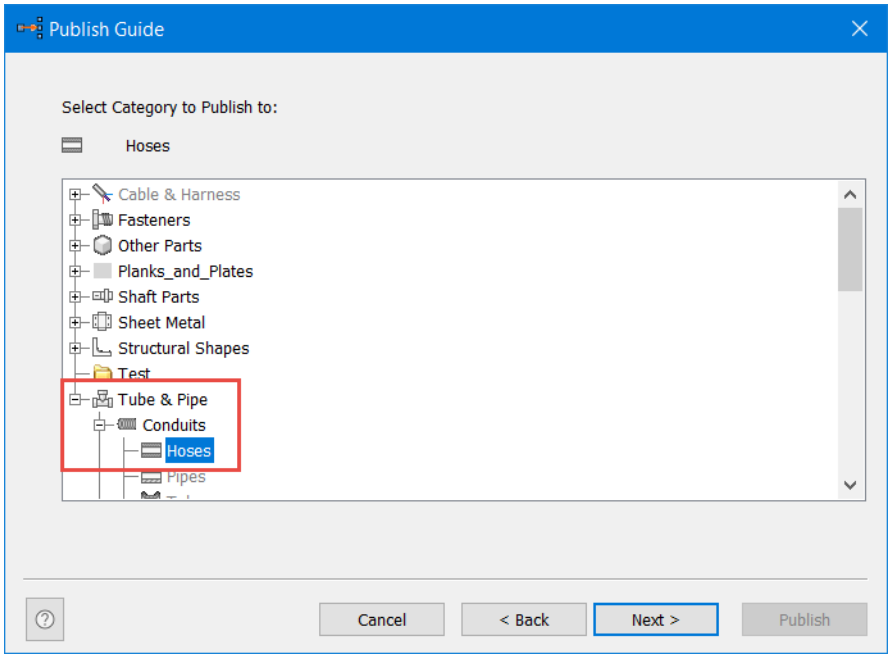


CONFIGURE CONNECTION POINT 2 AS DESIRED, IN THIS CASE IDENTICAL TO CONNECTION POINT 1

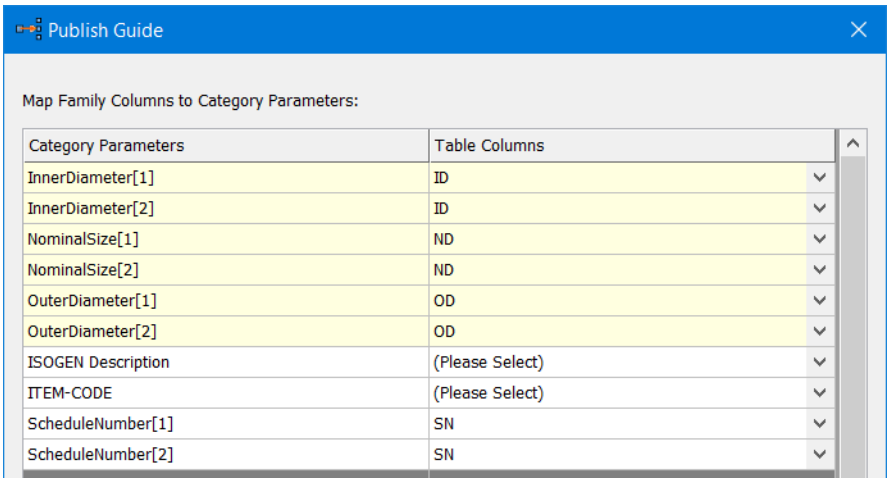


A CONFIRMATION IS DISPLAYED WHEN A COMPONENT IS SUCCESSFULLY AUTHORED

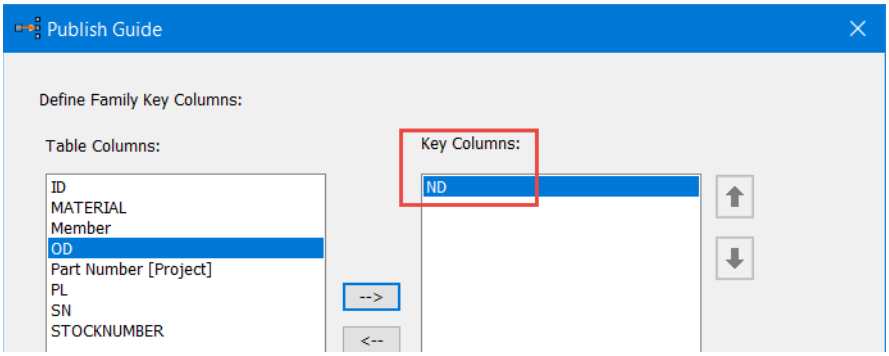
After a component is authored for Tube & Pipe, the publishing process to CC is the same as the components we've already looked at. There are just a couple of items to double check during the publishing process.



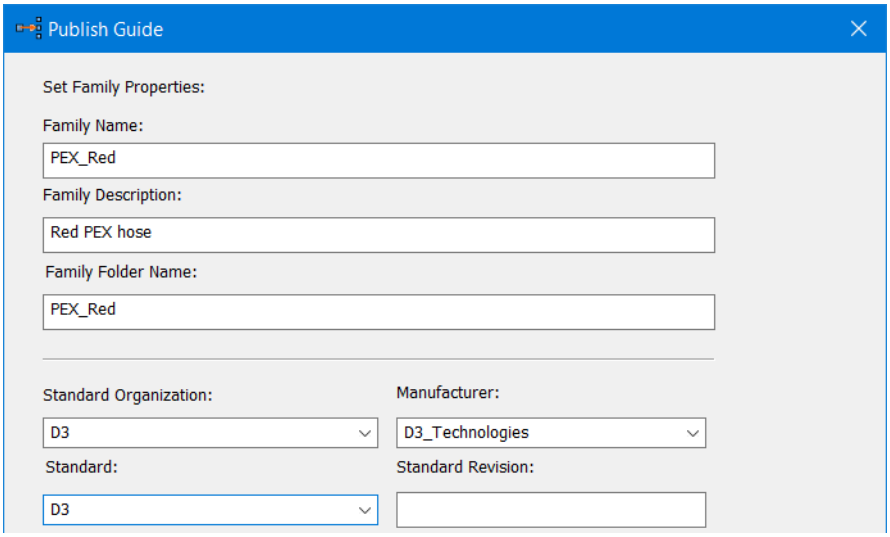
ENSURE THE PUBLISH LOCATION IS CORRECT



CC CATEGORY MAPPING TO IPART COLUMNS

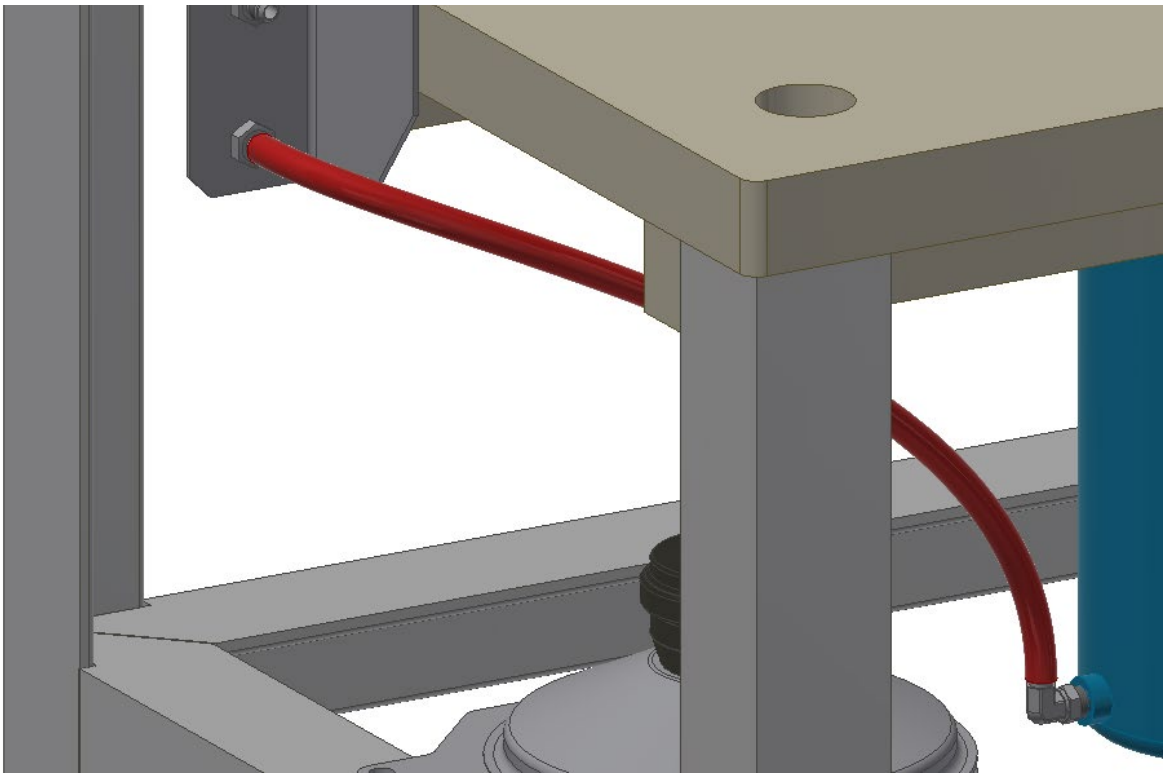


ESTABLISH THE KEY CC COLUMNS



CONFIGURE THE FAMILY PROPERTIES

After publishing the hose to the CC, a new Tube & Pipe style can be created to utilize the custom hose in new routes. Please see the “Video Link for Tube & Pipe Style Creation” in Appendix A for a demonstration of this process.



SAMPLE HOSE ROUTE WITH THE NEW CC HOSE COMPONENT

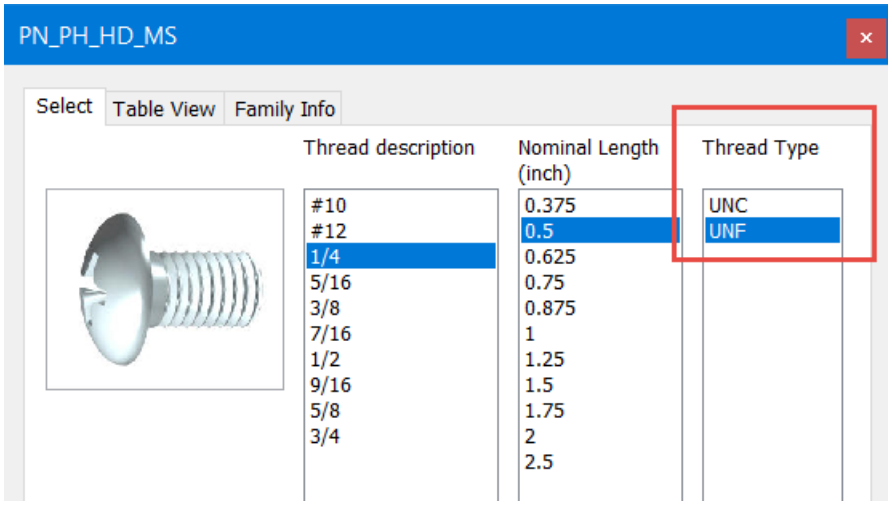
By authoring and subsequently publishing custom CC components, the Design Accelerators can be made more effective and the CC, in general, can truly be made your own.

Improving the end user experience

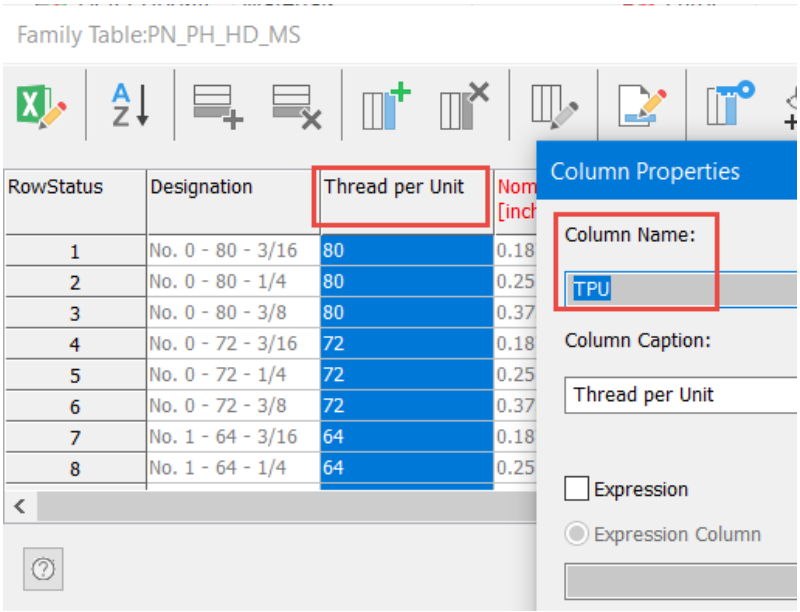
While the most impactful modifications to the CC involve customizing existing families or publishing new custom content, the CC can be modified to help improve day-to-day performance for the design team.

Add custom columns to aid in component selection

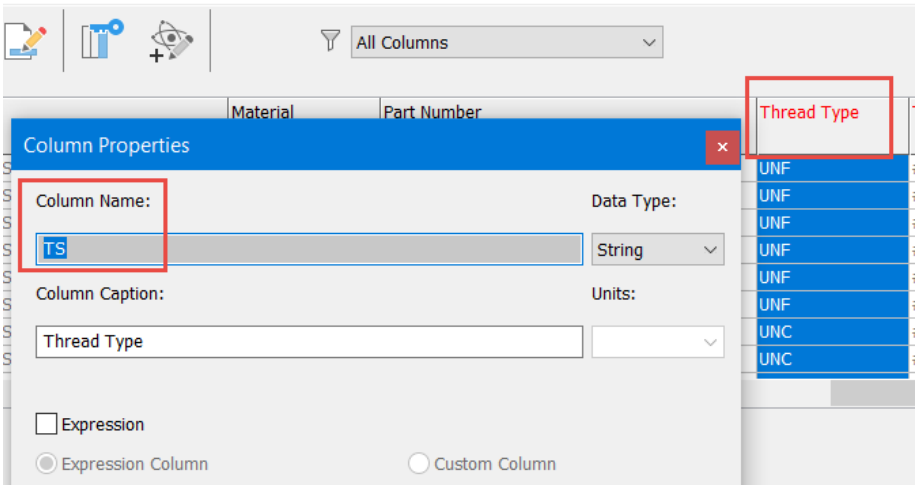
One helpful modification is to add new columns in the family table that can help improve the component selection process. In the following example, we'll create a column to help clarify the fastener thread pitch selection.



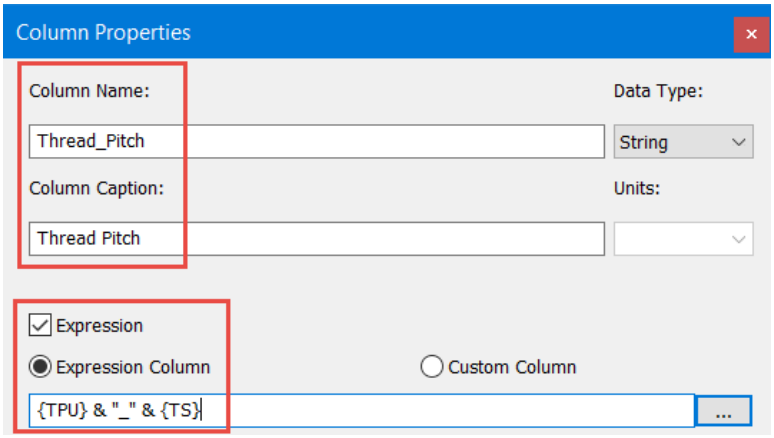
WHEN PLACING A FASTENER NOT EVERY DESIGNER WILL HAVE MEMORIZED THE UNC, UNF, ETC. VALUES FOR EVERY FASTENER SIZE



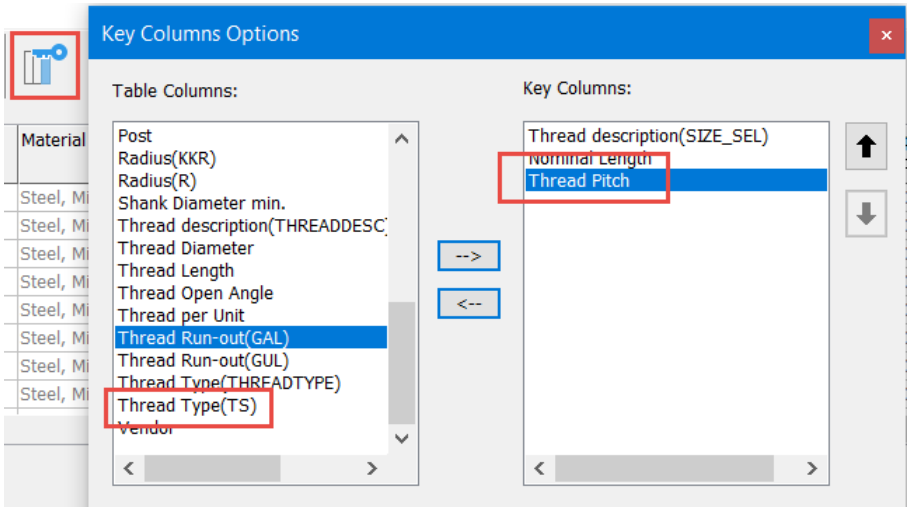
DETERMINE THE COLUMN NAME FOR "THREAD PER UNIT"



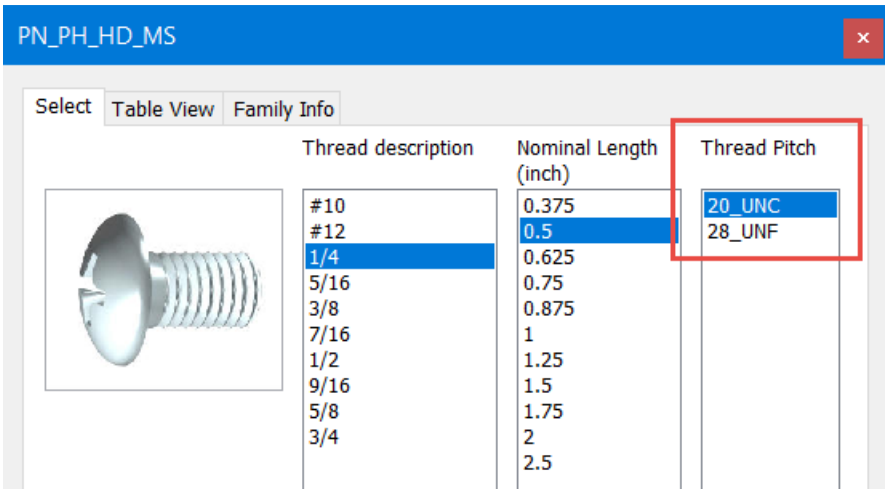
DETERMINE THE COLUMN NAME FOR "THREAD TYPE"



CREATE A NEW FAMILY COLUMN AND UTILIZE AN EXPRESSION COLUMN



ACTIVATE THE KEY COLUMN SELECTOR, REMOVE THE "THREAD TYPE(TS)" AND ADD "THREAD_PITCH"



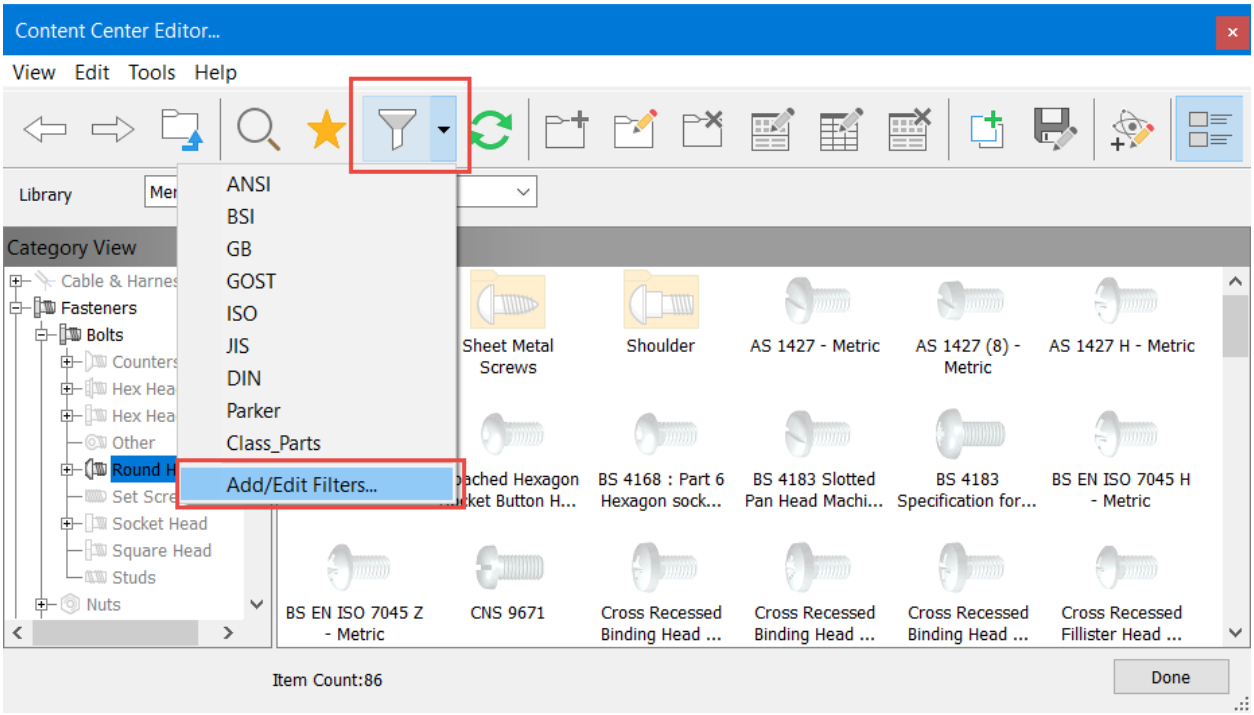
THE RESULTING CC PLACEMENT NOW SHOWS BOTH THE THREAD PITCH AND DESIGNATION

Now the thread type is a bit clearer, as both the thread pitch and designation are present, the result of a custom column that has been set as a key column. Columns that are used to control the size and configuration are very important but may not be the best candidates to use for CC selection. Therefore, custom key columns may be a necessity besides a more efficient selection tool.

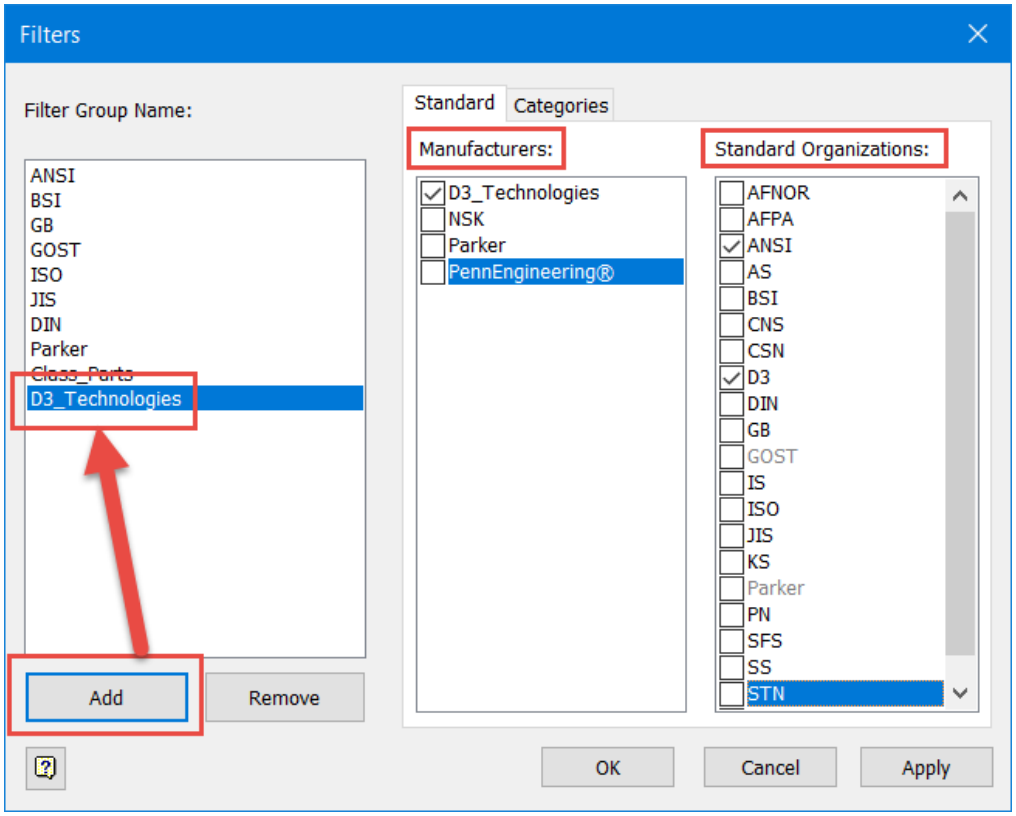
Create custom filters to highlight company specific components

Sometimes the sheer volume of components in the CC can be daunting. However, as we customize more and more of the CC, there are a couple of ways to limit the number of components to work with. One method is to turn off the CC libraries that aren't required, but this only becomes an effective strategy if all the desired families have been customized. Another method, the one that we'll be focusing on, is to create a set of filters that will allow us to home in on certain components, while leaving all the libraries available when needed.

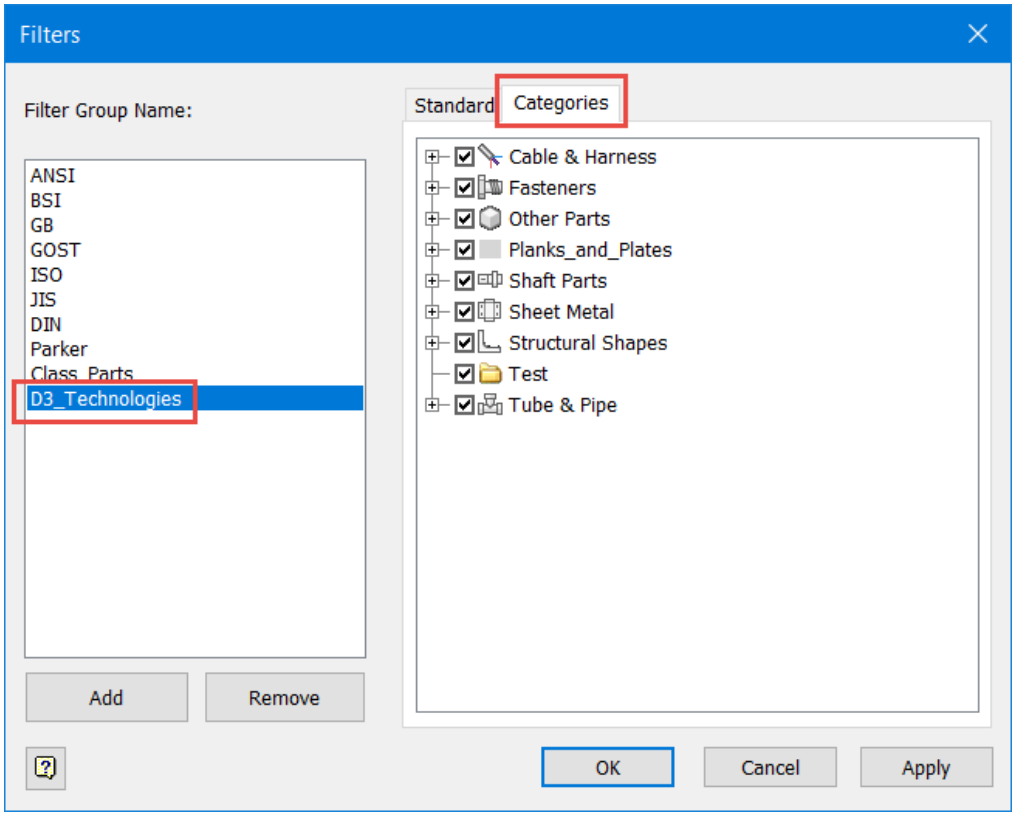
The easiest type of filter to set up is one based on a combination of "Manufacturer" and the "Standard Organization", as the Standard Organization is set for all the existing families and the Manufacturer can be added when editing the family properties.



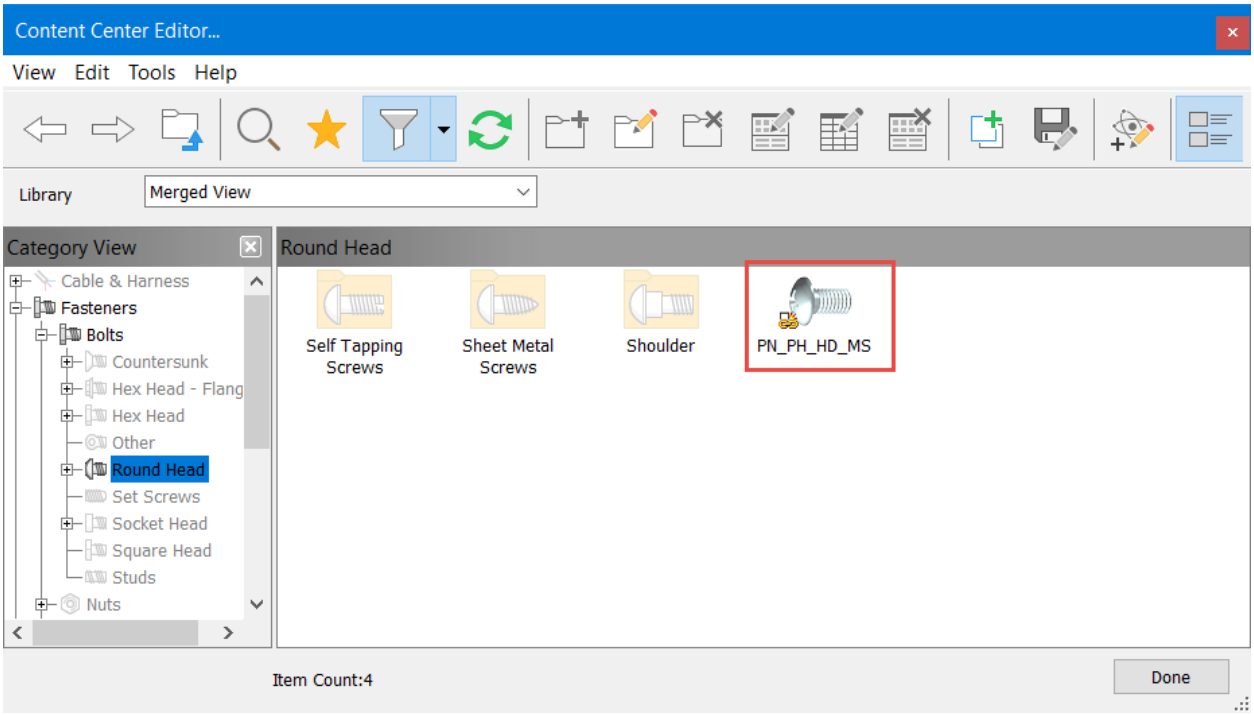
ACCESS THE FILTER EDITOR TOOL



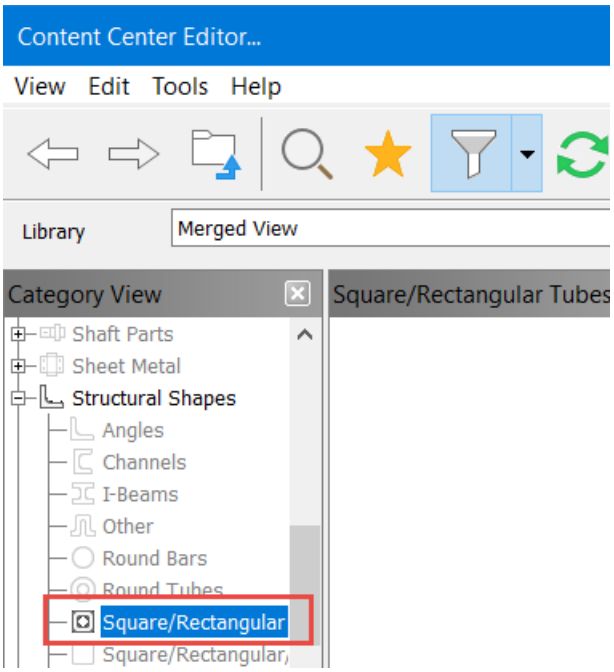
CONFIGURE THE FILTER BASED ON THE "MANUFACTURERS" AND "STANDARD ORGANIZATIONS"



CHOOSE THE CATEGORIES THE FILTER WILL IMPACT

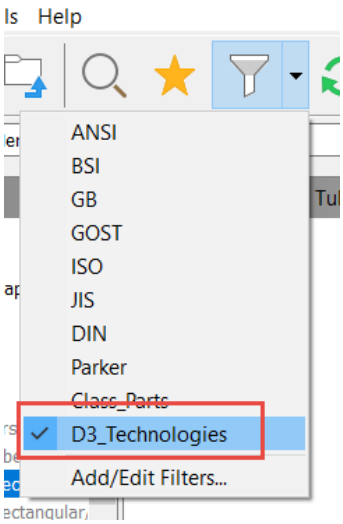


THE RESULTS OF THE FILTER ON THE FASTENER LIST

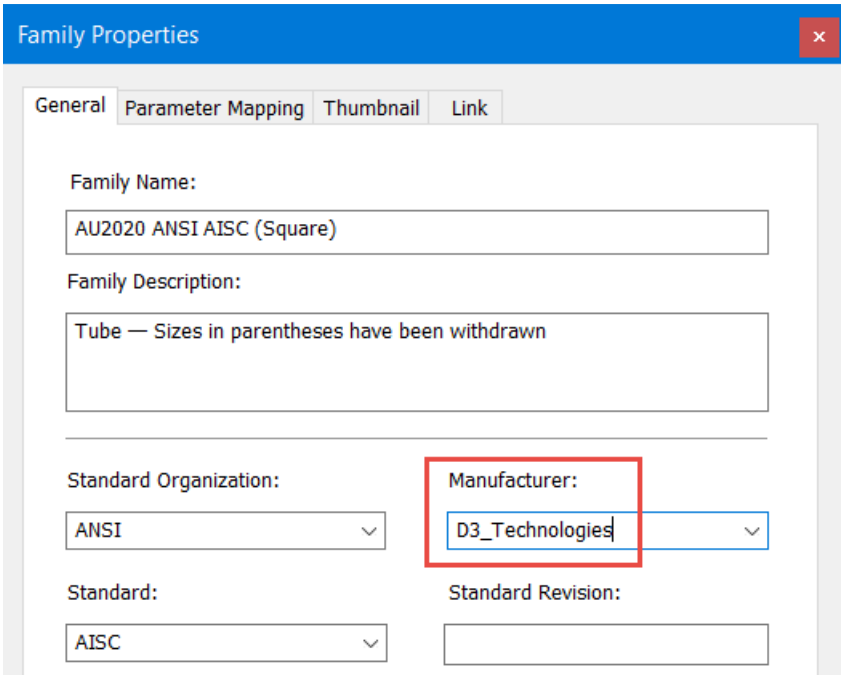


THE FILTER HAS ELIMINATED THE CUSTOMIZED SQUARE TUBE

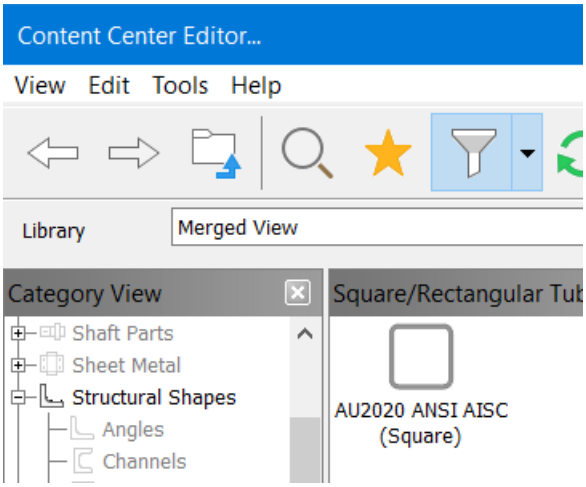
When items disappear from a filtered view, the reason is typically that one of the fields is missing or misspelled. Deactivating the filter will reveal the family for editing.



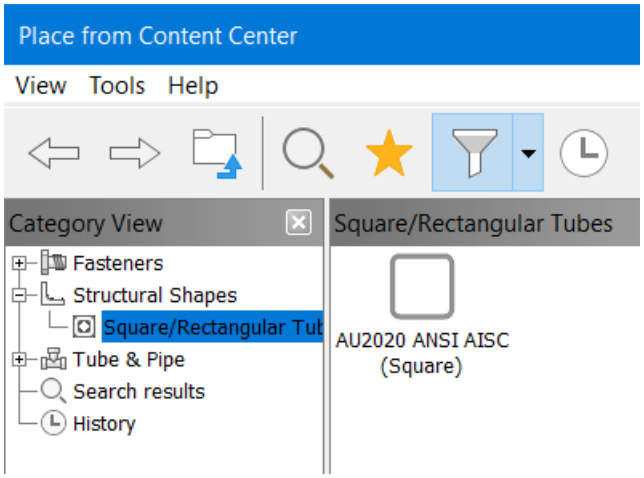
LEFT-CLICK ON THE FILTER ONCE MORE TO DISABLE THE FILTER



ADD THE MISSING MANUFACTURER INFORMATION



THE FILTER NOW SHOWS THE STRUCTURAL TUBE



THE FILTER WORKS FOR PLACING COMPONENTS AS WELL

Creating these filters will allow designers to quickly find the components required, without requiring lots of extra effort from the CC manager. One can create as many fittings as desired, so filters can accomplish unique goals for specific design situations.

Acknowledgements

I cannot accomplish all of this on my own and I am blessed and thankful to recognize the following people who helped to make this course possible.

- God Himself for this wonderful opportunity to serve others and literally every breath that take!
- Scott Dibben, my boss, for allowing me the time and space to explore these topics in more detail
- My colleague Dan Hunsucker, who helped me to better understand the formatting of Inventor Parameters and how the Replace Family Template tool worked
- My customers who have attended our CC classes and have asked such insightful questions, as these help to drive much of my research

Appendix A: Weblinks to video demonstrations

Video Link to the Overview of the Class
https://youtu.be/AuLilux-RcQ

Video Link for Custom CC Library Creation
https://youtu.be/QUhYDn9Hfog

Video Link for Copying an Existing Family and Editing the Properties
https://www.youtube.com/watch?v=9-sG_NggcbQ&t=3s

Video Link for Creating New CC Categories
https://www.youtube.com/watch?v=XiAGG9udHG8

Video Link for CC Family Edits (New Columns, Part Numbers, Paring Down Selection Lists, Key Columns Modifications)
https://www.youtube.com/watch?v=_J9gM1Q1_Ss

Video Link for Editing Family Tables with Out-of-the-Box File Naming
https://www.youtube.com/watch?v=H_btQ82wlwA&t=136s

Video Link for Replacing the Family Template
https://www.youtube.com/watch?v=gUGA01imWcM

Video Link for Authoring and Publishing a Tube & Pipe Hose
https://knowledge.autodesk.com/community/screencast/1b79fc16-d0e3-4fc7-b087-d7330e43b4a8

Video Link for Authoring and Publishing a Frame Generator Shape
https://youtu.be/iXuTu4cMIPA

Video Link for Tube & Pipe Style Creation
https://youtu.be/EoZGfW_wglk

Video for Custom Key Columns
https://youtu.be/ciZCkS-IoYE

Video for CC Filters
https://youtu.be/PvUykIPp7jo

Video for Modifying the CC Display Names in an Assembly
https://youtu.be/UKPLi_9UK_M

Appendix B: Weblinks to supplemental articles

AU2019 “Making the Content Center Do More for You” course
https://www.autodesk.com/autodesk-university/class/Making-Content-Center-Do-More-You-2019