

# Add Procurement Codes to Plant 3D Specs

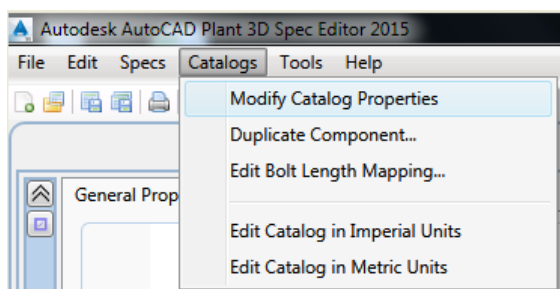
## AutoCAD Plant 3D 2015

This white paper describes a mechanism by which procurement codes may be added to catalogs and specs in AutoCAD Plant 3D 2015 to facilitate the automatic generation of procurement requests out of a Plant 3D model.

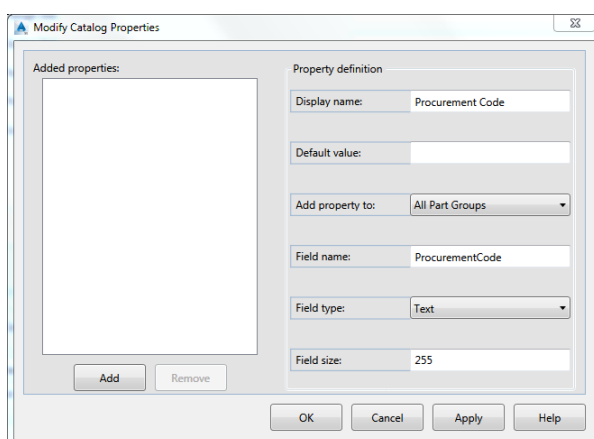
We will create a new property called 'Procurement Code' which we will add to all of the fittings in our Plant 3D piping catalog. We will copy this property forward into our specs and then propagate the property from the specs in to our Plant 3D model. We will then be able to include the Procurement Code in our Bill of Materials and other project deliverables.

### Modify Catalog Properties

To add a new property to a Plant 3D catalog, we select the **Modify Catalog Properties** option from the Catalogs menu of the AutoCAD Plant 3D Spec Editor.



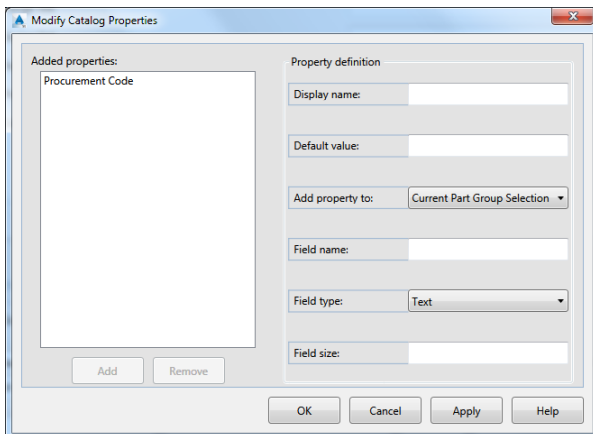
The Modify Catalog Properties window is displayed. To add a property, we fill out the fields within the Property definition panel. For our example, we will specify the following values.



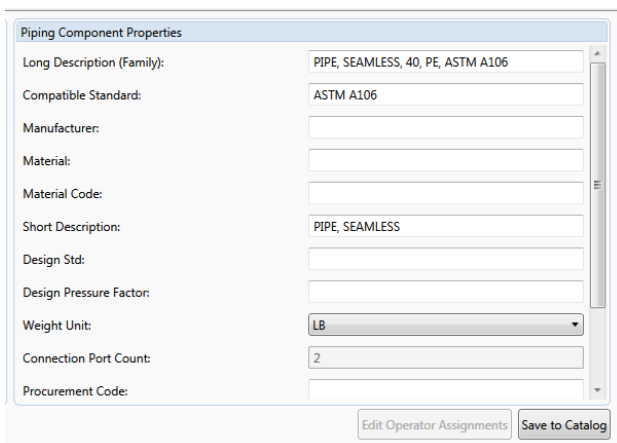
The Display name is the name used to display the property on screen whereas the Field name is the name used to identify the property within the Plant catalog database or .pcat file – these may differ, but the field name should contain alphabetic characters only, with no spaces or punctuation except underscores '\_'.

We do not need to specify a default value and we wish to add the property to All Part Groups within the catalog. We will set the data type to text and allow a maximum of 255 characters to be entered.

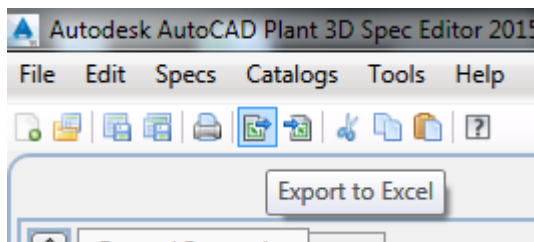
After entering the field values, we must click the **Add** button to add the new property to the Added properties list before clicking **Apply** or **OK** to add the property to our catalog.



Once it has been defined, the Procurement Code field is displayed in the Piping Component Properties panel on the General Properties tab of the Catalog Editor.

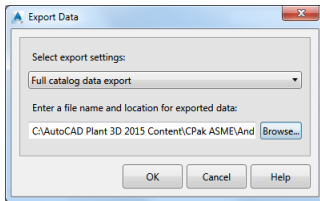


If we were to enter a value into the field through this window, the same value would be stored against all sizes of the fitting within the current Part Group. If we wish to store a different value against each size of fitting, we must look beyond the Spec Editor and define the values through Excel.

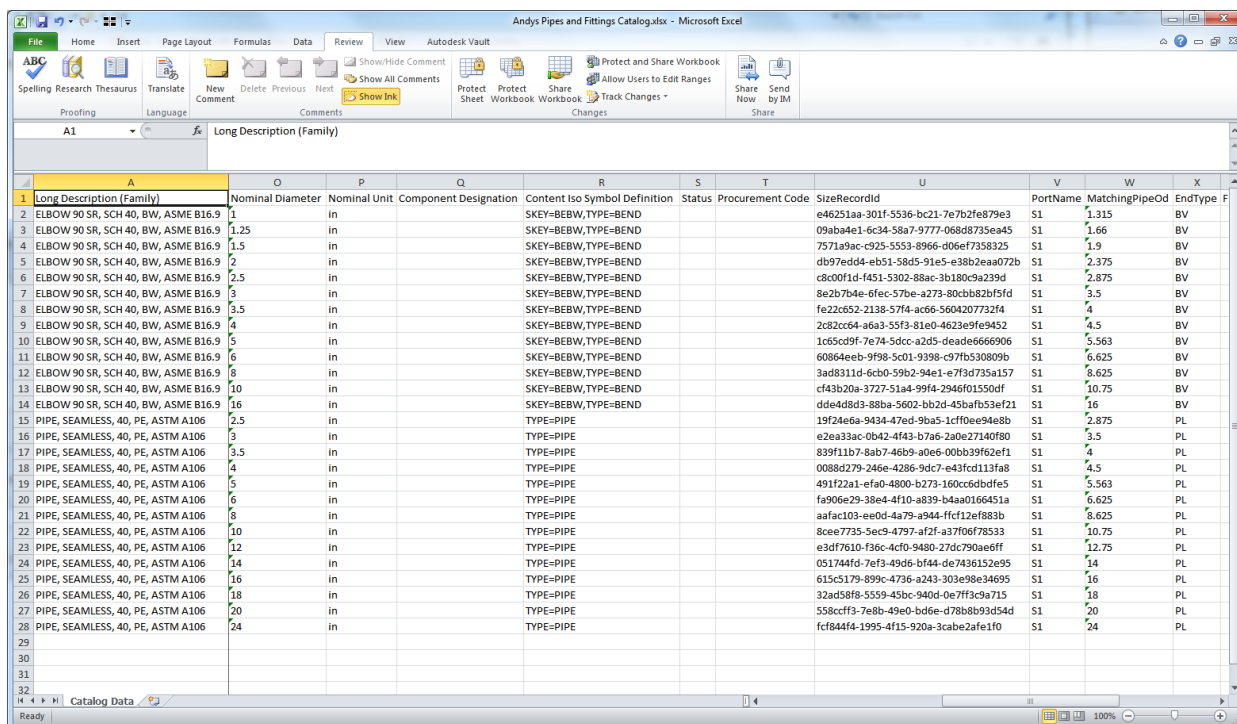


From the Spec Editor toolbar, we can export the contents of our catalog to an Excel workbook.

We will choose to export the full catalog data as we wish to enter a unique Procurement Code for all of our fittings.



When we open the exported workbook we can see that each row in the workbook represents a fitting from our catalog; each column contains the value of a corresponding property from the catalog.

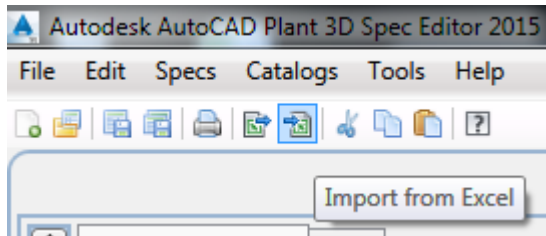


For our example, we will simply use Excel's Fill Series function to enter incrementing values into the Procurement Code column for our elbows and pipes.

S	T	U	V
Port	Procurement Code	SizeRecordId	Port
E1	e46251aa-301f-5536-bc21-7e7b2fe879e3	S1	
E2	09aba4e1-6c34-58a7-9777-068d8735ea45	S1	
E3	7571a9ac-c925-5553-8966-d06ef7358325	S1	
E4	db97ed44-eb51-58d5-91e5-e38b2eaa072b	S1	
E5	c8c00f1d-f451-5302-88ac-3b180c9a239d	S1	
E6	8e2b7b4e-6fec-57be-a273-80cb82bf5fd	S1	
E7	fe22c652-2138-5714-ac66-5604207732f4	S1	
E8	2c82cc64-a6a3-55f3-81e0-4623e9fe9452	S1	
E9	1c65cd9f-7e74-5dcc-a2d5-deade6666906	S1	
E10	60864eeb-9f98-5c01-9398-c97fb530809b	S1	
E11	3ad8311d-6cb0-59b2-94e1-e7f3d735a157	S1	
E12	c43b20a-3727-51a4-99f4-2946f01550df	S1	
E13	dde4d8d3-88ba-5602-bb2d-45baf53ef21	S1	
P1	19f2466a-9434-47ed-9ba5-1cfff0ee94e8b	S1	
P2	e2ea33ac-0b42-4f43-b7a6-2a0e27140f80	S1	
P3	839f11b7-8ab7-46b9-a0e6-00bb39f62ef1	S1	
P4	0088d279-246e-4286-9dc7-e43fcd113fa8	S1	
P5	491f22a1-efad-4800-b273-160ccdb0fe5	S1	
P6	fa90e29-38e4-4f10-a839-b4aa0166451a	S1	
P7	aafac103-ee0d-4a79-a944-ffc12ef883b	S1	
P8	8cee7735-5ec9-4797-af2f-a37f06f78533	S1	
P9	e3df7610-f36c-4cf0-9480-27dc790ae6ff	S1	
P10	051744fd-7ef3-49d6-bf44-de7436152e95	S1	
P11	615c5179-899c-4736-a243-303e98e34695	S1	
P12	32ad58f8-5559-45bc-940d-0e7ff3ca9715	S1	
P13	558ccff3-7e8b-49e0-bd6e-d78bb93d54d	S1	
P14	fcf844f4-1995-4f15-920a-3cabe2afe1f0	S1	

After entering values for our Procurement Codes, we will save and close the Excel workbook.

We can now import the values that we entered into the Excel workbook back into our catalog by clicking the **Import from Excel** button on the Spec Editor toolbar. When prompted we will choose to open our updated workbook.



Once the file has been imported, we are presented with the following window that allows us to review the changes that we have made to the workbook and choose whether to accept or reject those changes within the catalog data.

Resolve Excel Import Changes

Accept or reject the changes from the imported Excel file:

Catalog: Andys Pipes and Fi | C:\AutoCAD Plant 3D 2015 Content\CPak ASME\Andys Pipes and Fittings Catalog.xlsx

Connection Port Count	Nominal Diameter	Nominal Unit	Component Designation	Part Category	Content Iso Symbol Definition	PartVersion	Status	Procurement Code	SizeRecordId	PortName	MatchingPipeOd	EndType
2	1	in		Fittings	SKEY=BEBW,TY...	4_0		E1	e46251aa-301f...	S1	1.315	BV
2	1.25	in		Fittings	SKEY=BEBW,TY...	4_0		E2	09aba4e1-6c34...	S1	1.66	BV
2	1.5	in		Fittings	SKEY=BEBW,TY...	4_0		E3	7571a9ac-c925...	S1	1.9	BV
2	2	in		Fittings	SKEY=BEBW,TY...	4_0		E4	db97ed34-eb51...	S1	2.375	BV
2	2.5	in		Fittings	SKEY=BEBW,TY...	4_0		E5	c8c00f1d-1451-5...	S1	2.875	BV
2	3	in		Fittings	SKEY=BEBW,TY...	4_0		E6	8e2b7b4e-6fec...	S1	3.5	BV
2	3.5	in		Fittings	SKEY=BEBW,TY...	4_0		E7	fe22c652-2138...	S1	4	BV
2	4	in		Fittings	SKEY=BEBW,TY...	4_0		E8	2c82cc64-a6a3...	S1	4.5	BV
2	5	in		Fittings	SKEY=BEBW,TY...	4_0		E9	1c65cd9f-7e74...	S1	5.563	BV
2	6	in		Fittings	SKEY=BEBW,TY...	4_0		E10	60864eeb-9f98...	S1	6.625	BV
2	8	in		Fittings	SKEY=BEBW,TY...	4_0		E11	3ad8311d-6cb0...	S1	8.625	BV
2	10	in		Fittings	SKEY=BEBW,TY...	4_0		E12	cf43b20a-3727...	S1	10.75	BV
2	16	in		Fittings	SKEY=BEBW,TY...	4_0		E13	dde4d6d3-88ba...	S1	16	BV
2	2.5	in		Pipe	TYPE=PIPE	4_0		P1	19f24e6a-9434...	S1	2.875	PL
2	3	in		Pipe	TYPE=PIPE	4_0		P2	e2ea33ac-0b42...	S1	3.5	PL
2	3.5	in		Pipe	TYPE=PIPE	4_0		P3	839f11b7-8ab7-4...	S1	4	PL
2	4	in		Pipe	TYPE=PIPE	4_0		P4	0088d279-246e...	S1	4.5	PL
2	5	in		Pipe	TYPE=PIPE	4_0		P5	491f22a1-efa0-4...	S1	5.563	PL
2	6	in		Pipe	TYPE=PIPE	4_0		P6	fa906e29-38e4...	S1	6.625	PL
2	8	in		Pipe	TYPE=PIPE	4_0		P7	aafac103-ee0d...	S1	8.625	PL
2	10	in		Pipe	TYPE=PIPE	4_0		P8	8cee7735-sec9...	S1	10.75	PL
2	12	in		Pipe	TYPE=PIPE	4_0		P9	e3df7610-f96c-4...	S1	12.75	PL
2	14	in		Pipe	TYPE=PIPE	4_0		P10	051744fd-7ef3-4...	S1	14	PL
2	16	in		Pipe	TYPE=PIPE	4_0		P11	615c5179-899c...	S1	16	PL
2	18	in		Pipe	TYPE=PIPE	4_0		P12	32ad58f8-5559...	S1	18	PL
2	20	in		Pipe	TYPE=PIPE	4_0		P13	558ccff3-7e8b-4...	S1	20	PL
2	24	in		Pipe	TYPE=PIPE	4_0		P14	fcf844f4-1995-4...	S1	24	PL

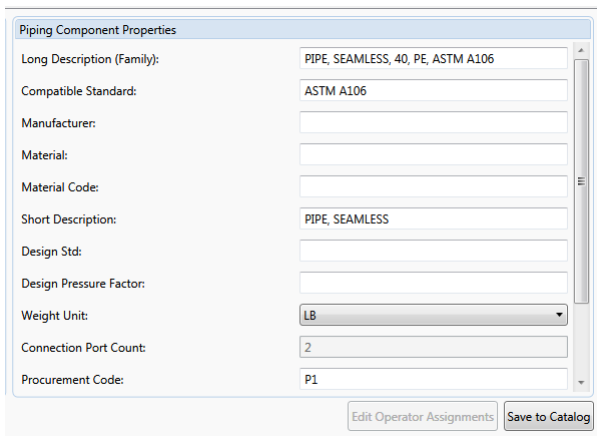
Record 1 of 27

Only show parts with changes

OK Cancel Apply Help

We will choose to accept all of the changes and then save the catalog.

If we now look at the Procurement Code field that is displayed in the Piping Component Properties panel on the General Properties tab of the Catalog Editor we will see that it displays the value that we assigned to the first fitting within the currently selected Part Group.



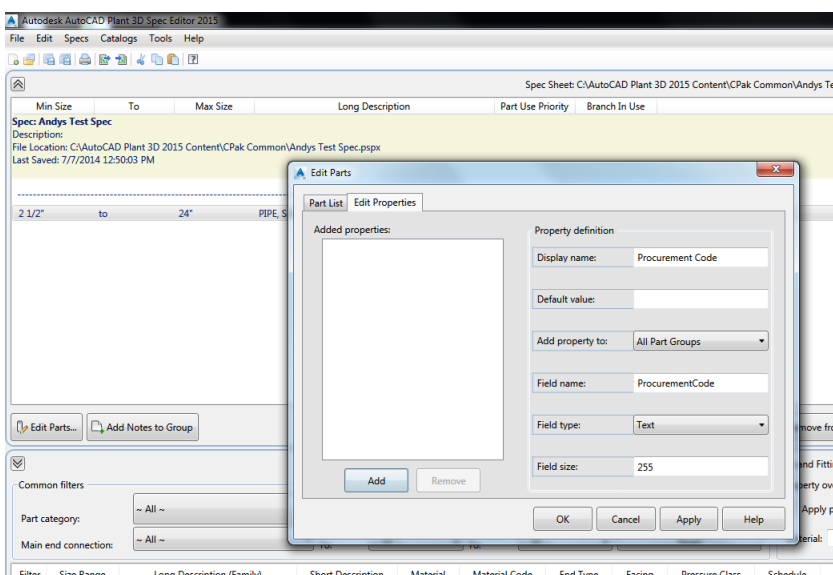
We see that the Procurement Code field for our Pipe is showing the value 'P1' which was value we assigned to the first Pipe in the group, the pipe with 2.5in ND. If we were to modify this value here, that modified value would be applied to every size of our pipe – we must be careful not to do this.

### Modify Spec Properties

Our piping catalog now contains a unique Procurement Code for each fitting within it. When we add one of these fittings to a pipe spec we wish to copy the Procurement Code into the spec too. To do this, we must add a new property to the spec with exactly the same definition as it has within the catalog.

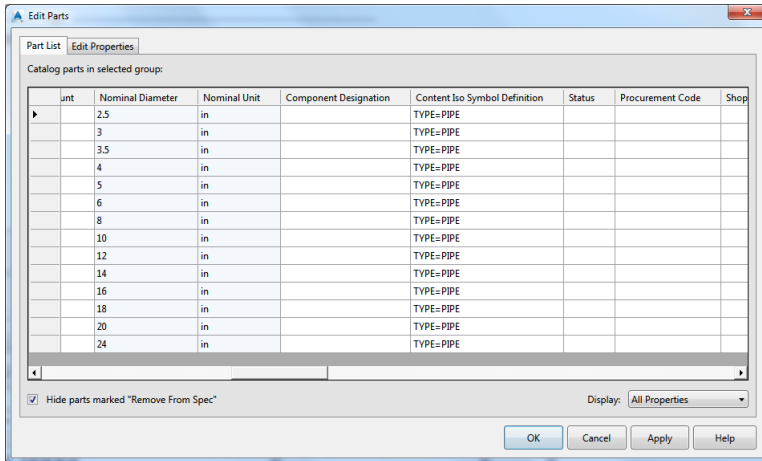
However, we cannot create the property until we have added some fittings in to the spec.

First, we will create a new spec and add the pipes to it from our catalog. We will then select the pipes in the Spec Editor and click the **Edit Parts...** button to bring up the Edit Parts window.

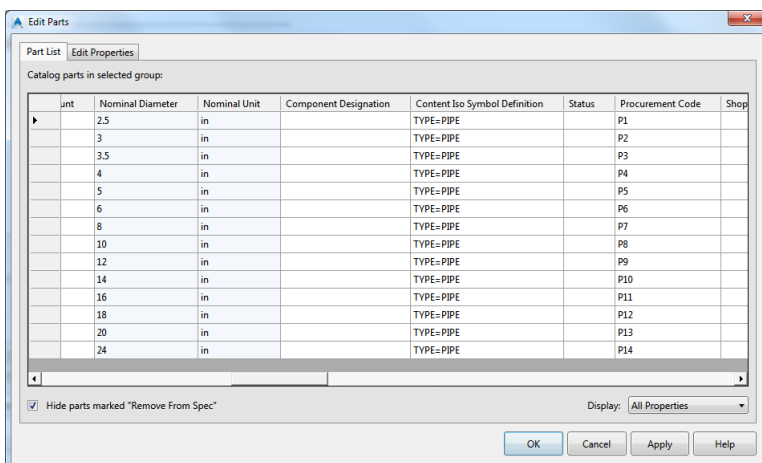


In the Property definition panel, we will enter the same values that we used to define the Procurement Code in our catalog.

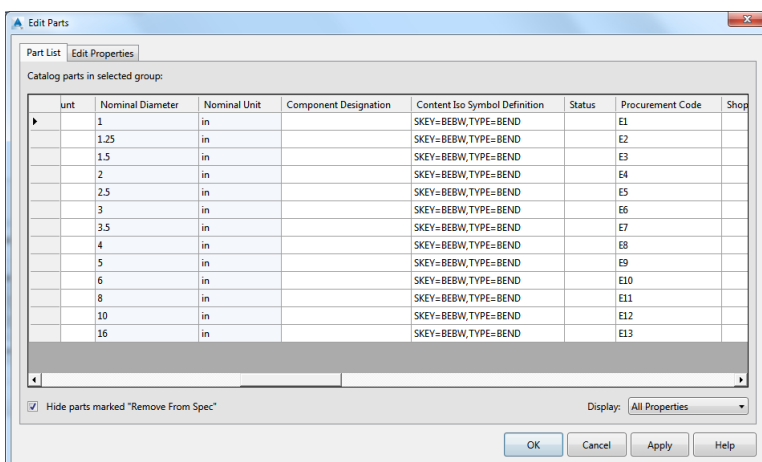
Again, we must click the **Add** button to add the new property to the Added properties list before clicking **Apply** or **OK** to add the property to our catalog. An empty Procurement Code column is then displayed in the Part List tab of the Edit Parts window.



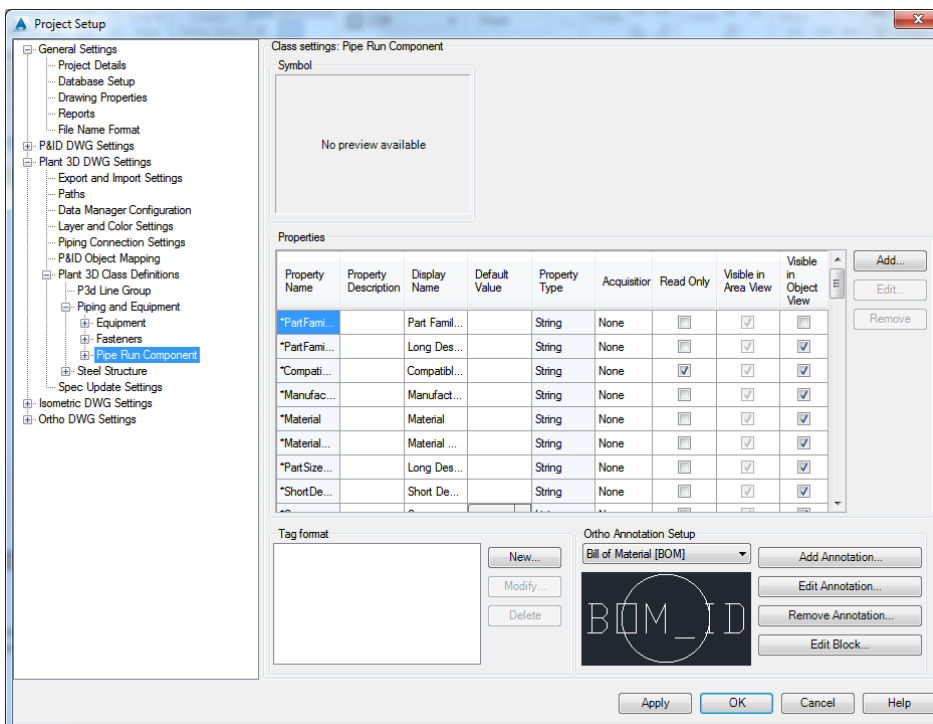
To populate this column, we simply remove the pipes from the spec and add them again.



When we add the elbows, the Procurement Code is added automatically.

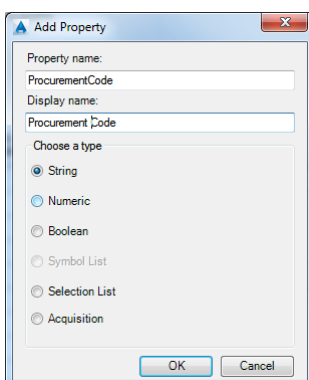


## Add Model Property



When we place a fitting from our spec into a Plant 3D model, we want to copy the Procurement Code property too. To facilitate this, we must add a Procurement Code property to the Plant 3D Class Definitions within our Plant 3D project. We will add the property to the Pipe Run Component class in our example (we would also need to add the property to the Fasteners class if we wished to include a Procurement Code for bolts, gaskets and other fasteners, too).

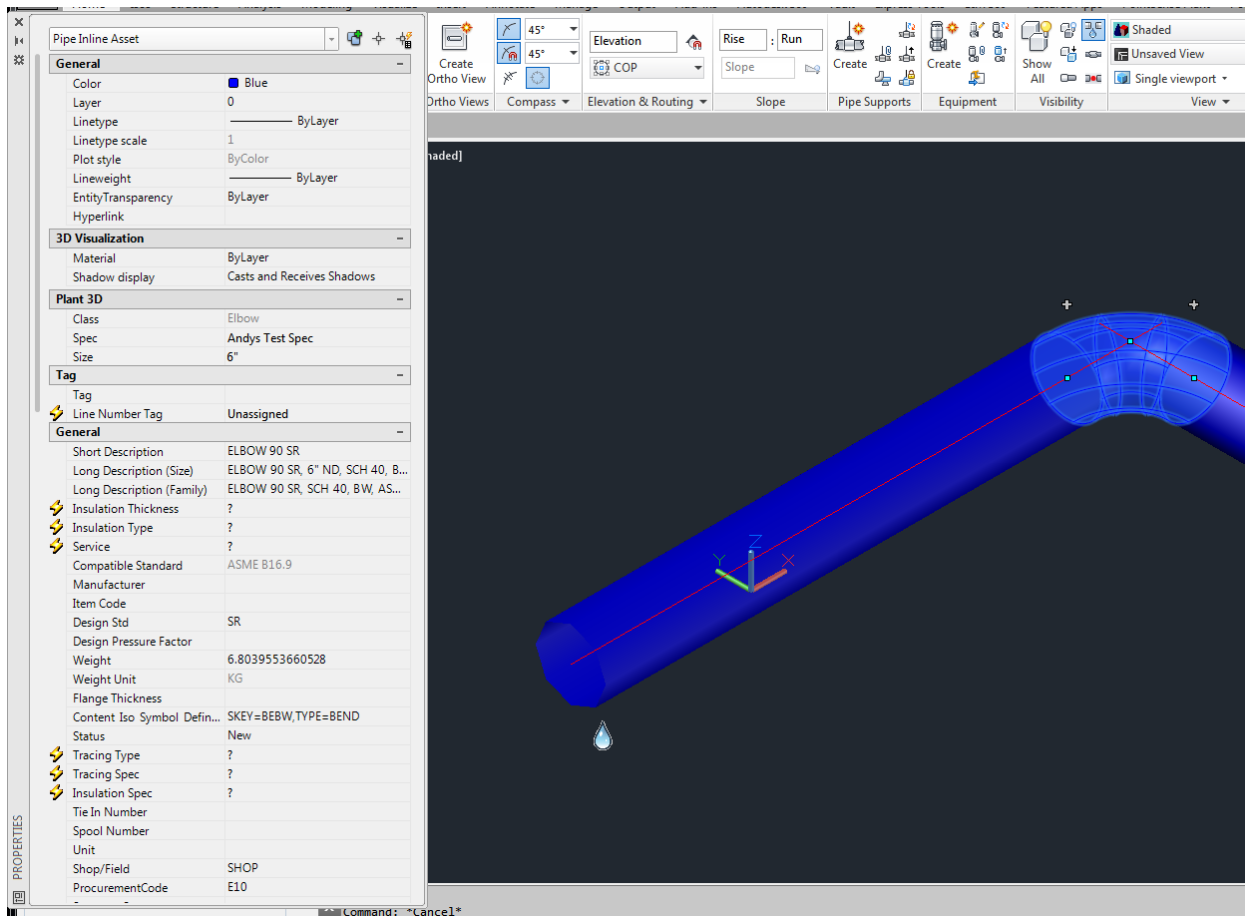
With the Pipe Run Component category selected in Project Setup, we click the **Add...** button to add our new Procurement Code property. The property name must match exactly with the Field name that we entered when we defined the Procurement Code property in our spec; the Display name may differ. We choose String as the data type for the new property.



We click **OK** to add the new property and **OK** again to save the changes to Project Setup and close the Project Setup window.

Finally, before we start to add new fittings in to our model, we need to close our project in Plant 3D and re-open it again.

When we start to route pipe with our new spec the Procurement Code for each of the fittings will be copied in to the model.



Here we can see the Procurement Code E10 for a 90° SR 6" Elbow in object properties, above, and the Procurement Code for all Pipe Run Components in the Data Manager window, below.

Long Description (Family)	Compatible Standard	Manufacturer	Material	Material Code	Long Description (Size)	Short Description	Spec	Size	Insulation Type	Procurement Code	Service	Tag	Tie In Number
ELBOW 90 SR, S...	ASME B16.9				ELBOW 90 SR, 6...	ELBOW 90 SR	Andys Test Spec	6"	?	E10	?		
PPE, SEAMLESS...	ASTM A106				PPE, SEAMLESS...	PPE, SEAMLESS	Andys Test Spec	6"	?	P6	?		
PPE, SEAMLESS...	ASTM A106				PPE, SEAMLESS...	PPE, SEAMLESS	Andys Test Spec	6"	?	P6	?		

Now that we have the Procurement Code available as a property in our model we can include it in our Bill of Materials and other deliverables from our project as required.

Quantity	Unit	Description	ND	Standard	Schedule	Material	Proc. Code
<b>Bill of Material</b>							
Project:							
Note: Fixed-length pipes are not included in pipes.							
<b>Type: PIPE, SEAMLESS</b>							
1967	mm	PIPE, SEAMLESS, 40, 6" ND, PE, ASTM A106	6 in	ASTM A106	40		P6
<b>Type: ELBOW 90 SR</b>							
1		ELBOW 90 SR, 6" ND, SCH 40, BW, ASME B16.9	6 in	ASME B16.9	40		E10

## Summary

In summary, then, we have created a new property in our Plant 3D piping catalog, called 'Procurement Code'.

We created a corresponding property in our spec and added a property of the same name to the Pipe Run Components in our Plant 3D model.

We can now view the Procurement Code in the Data Manager and include it in our Bill of Materials and other project deliverables as required.

