

# Beyond out of the box customization for AutoCAD P&ID

Quentin Contreras

Autodesk Premium Support Product Specialist

# Introduction

I have worked for Autodesk since 2012 on the Enterprise Support team supporting AutoCAD Plant 3D and P&ID. I live in and work in Lake Oswego, Oregon.

I have been involved with Autodesk technology for over 25 years (starting with release 10). Prior to joining Autodesk I worked with various companies as a CAD Manager and Designer with focus in the oil and gas industry and ammonia refrigeration.

I like to take trips to the Oregon coast to go fishing, crabbing and clamming. I am a big supporter of the MLS Portland Timbers!



# Class summary

In this class I will share some useful steps to customize content to use in your AutoCAD P&ID software projects. You will be lead through accessing the project setup and learn what can be edited. We will primarily focus on accessing Engineering Items. This will involve creating custom equipment, inline assets, and instrumentation. In addition I will show how to create unique tagging and custom off page connectors.

# Key learning objectives

At the end of this class, you will be able to:

- Navigate successfully through project setup
- Know how to create custom engineering items
- Know how to create unique tagging
- Know how to create custom off page connectors



# Beyond out of the box customization for AutoCAD P&ID



# I need custom P&ID content!



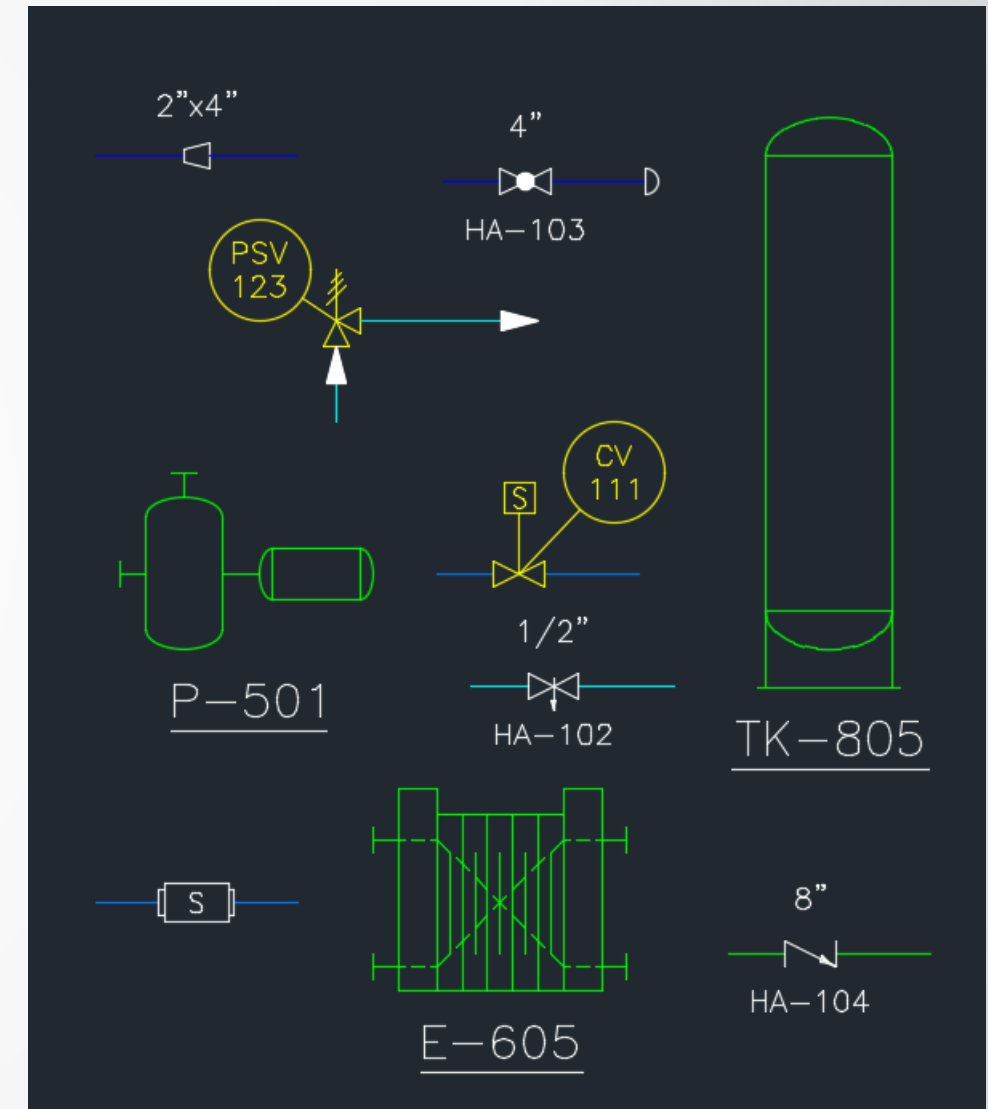
# I need custom P&ID content!

- Out of the box content does not fit your needs
- Where to start with customization?
- Who should be doing customization?
- I can't find this symbol, where is it?
- How can I create new symbols?
- Where do I start in the Project Setup?



# Creating the Template Project

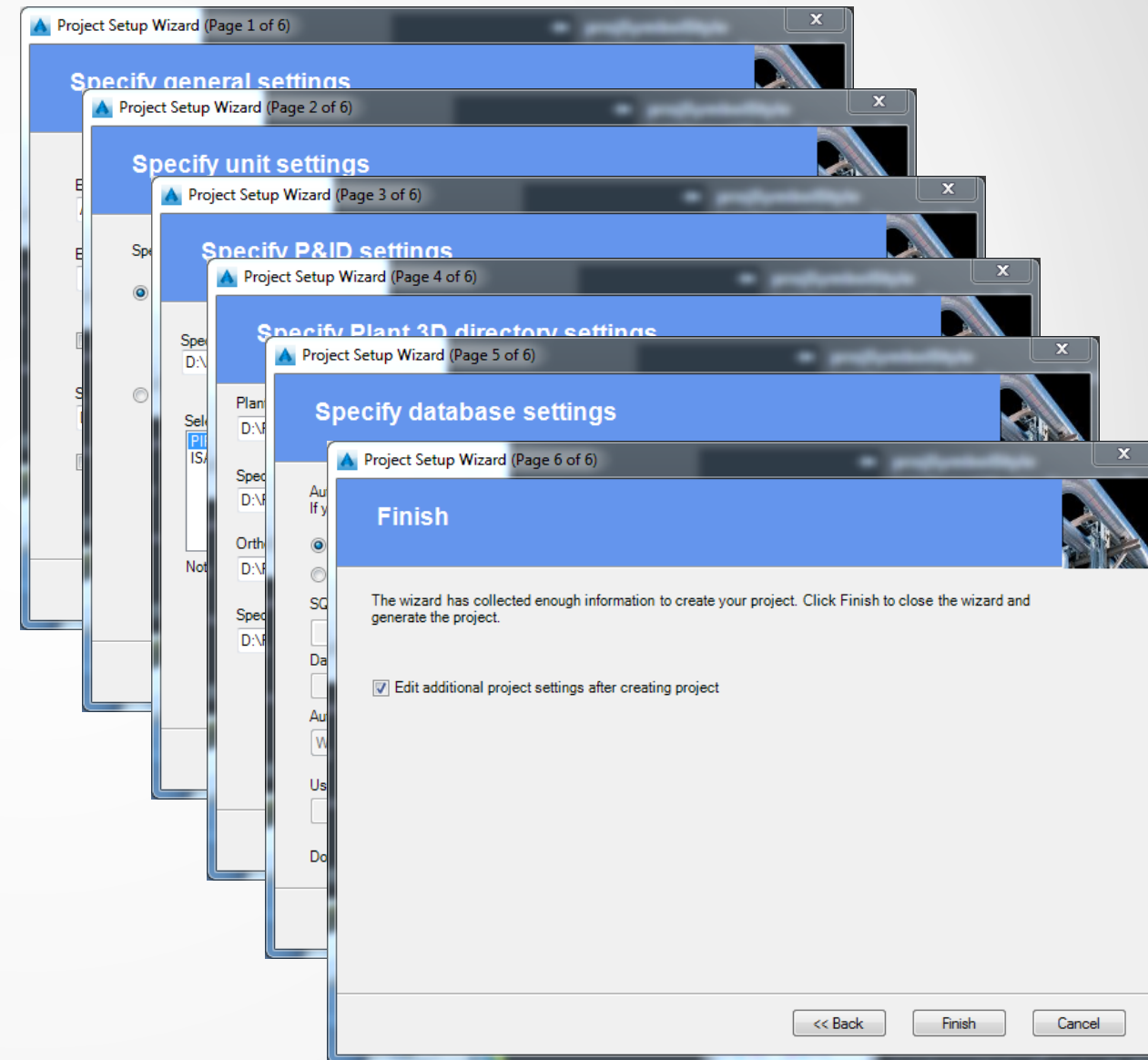
- AutoCAD P&ID out of the box symbol standards
  - PIP, ISO, ISA, DIN, JIS-ISO
- Identify people who will be responsible for customization
- Create Non-Working environment project
- Test as you create





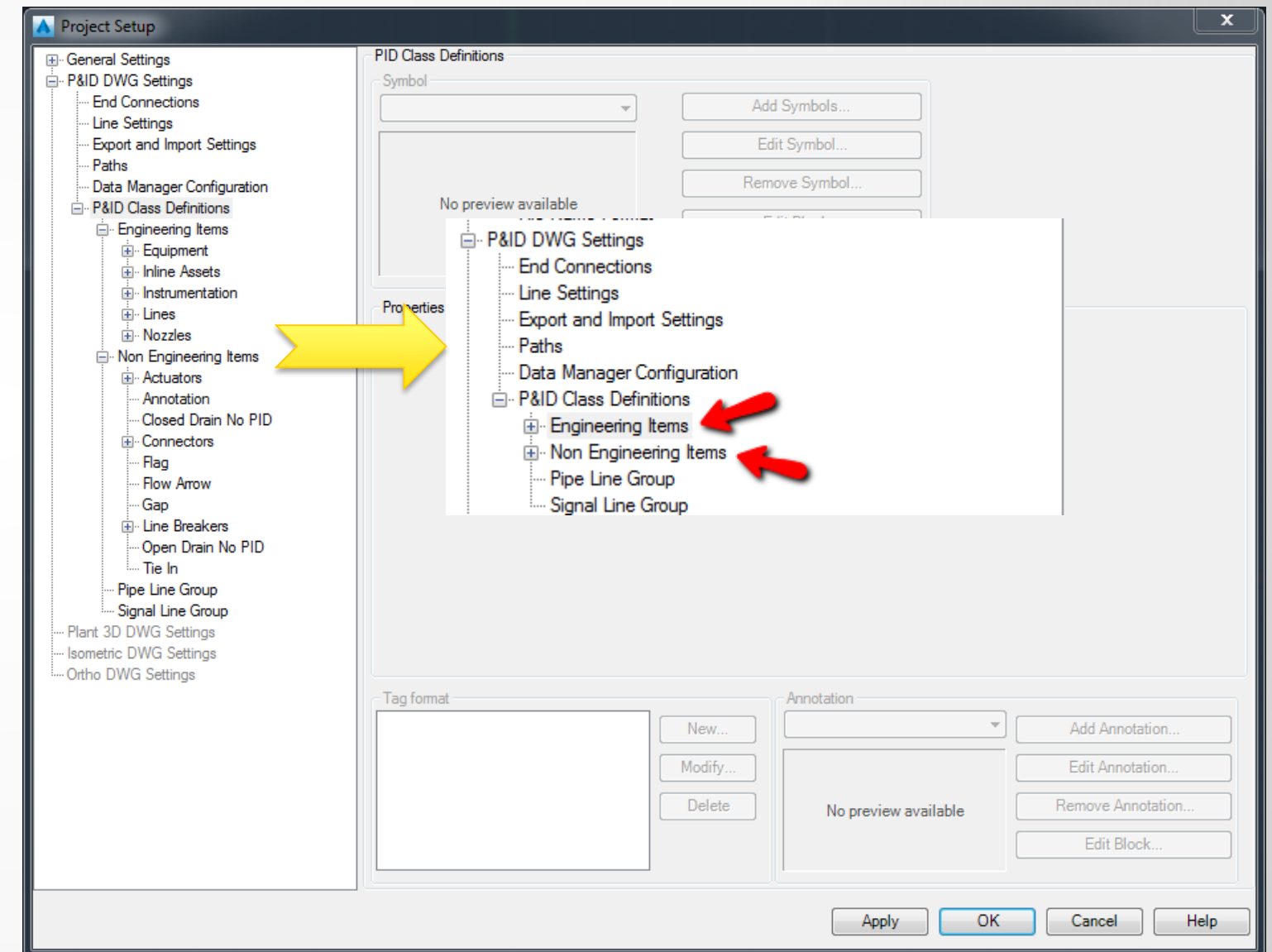
# Creating the Template Project

- Create a new P&ID project and name it to identify it as your working template



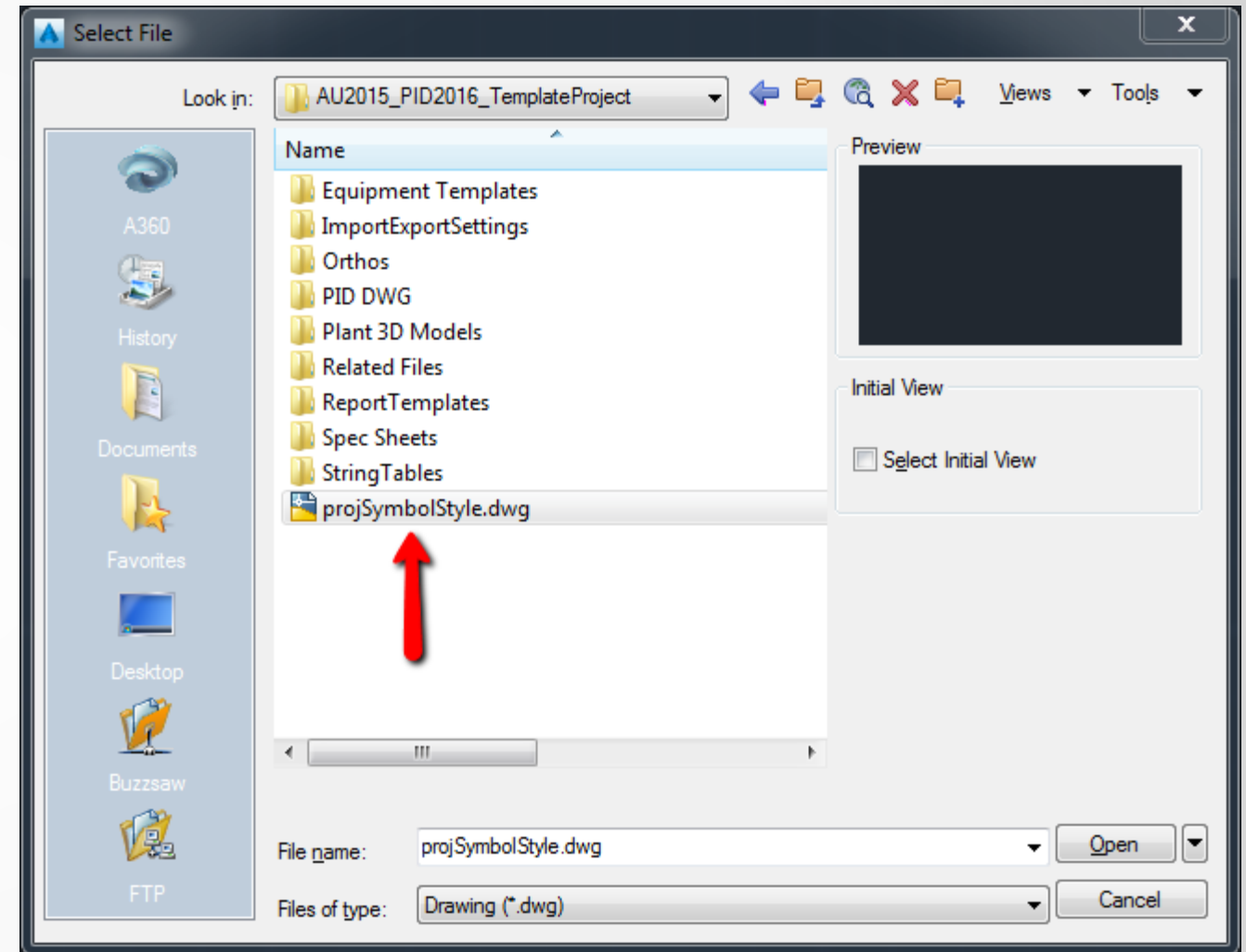
# Creating the Template Project

- Focal areas of customization for this demo
  - Engineering Items
    - Equipment
  - Inline Assets
    - Valves
  - Instrumentation
    - Inline Instruments
  - Non-Engineering Items
    - Connectors



# Custom Symbol Storage and Location

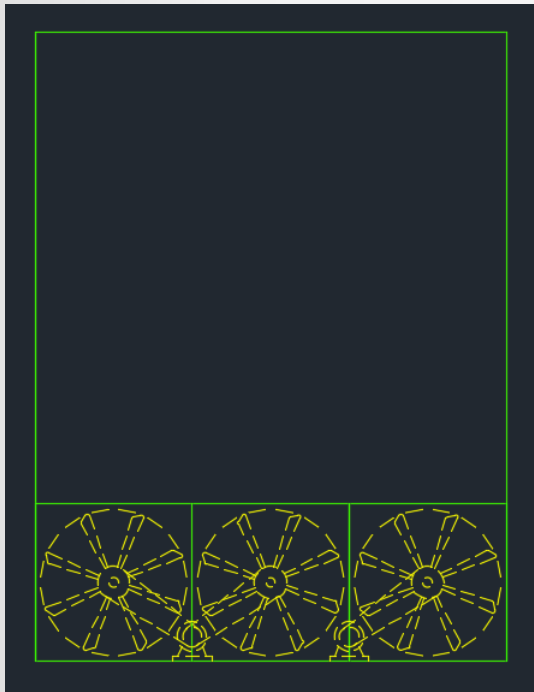
- Where to store your custom content
- projSymbolStyle drawing
  - Blocks
  - Layers
  - Text Styles



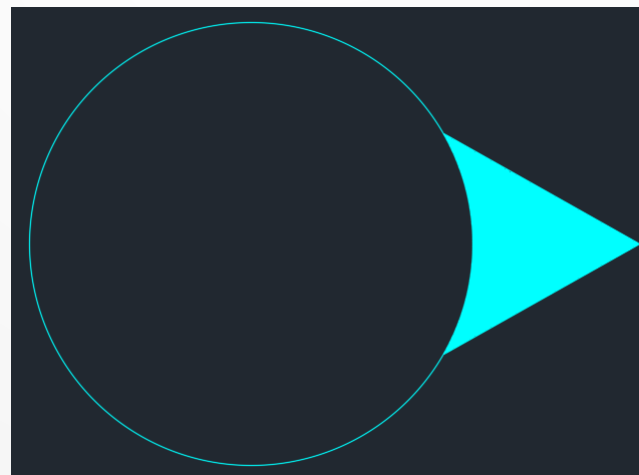


# Demo Symbols

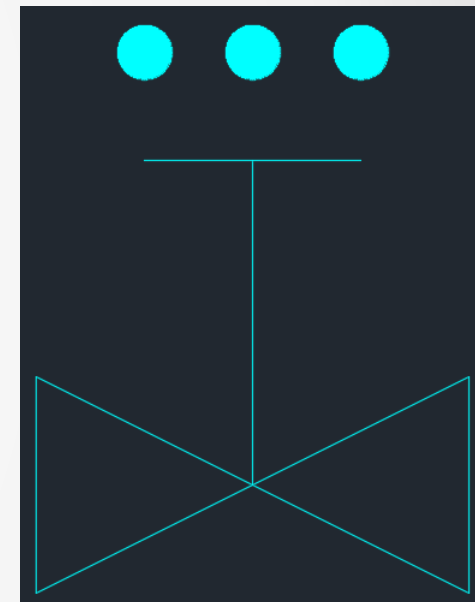
Equipment  
Evaporative Condenser



Instrumentation – Inline  
Instrument  
Flow Indicator

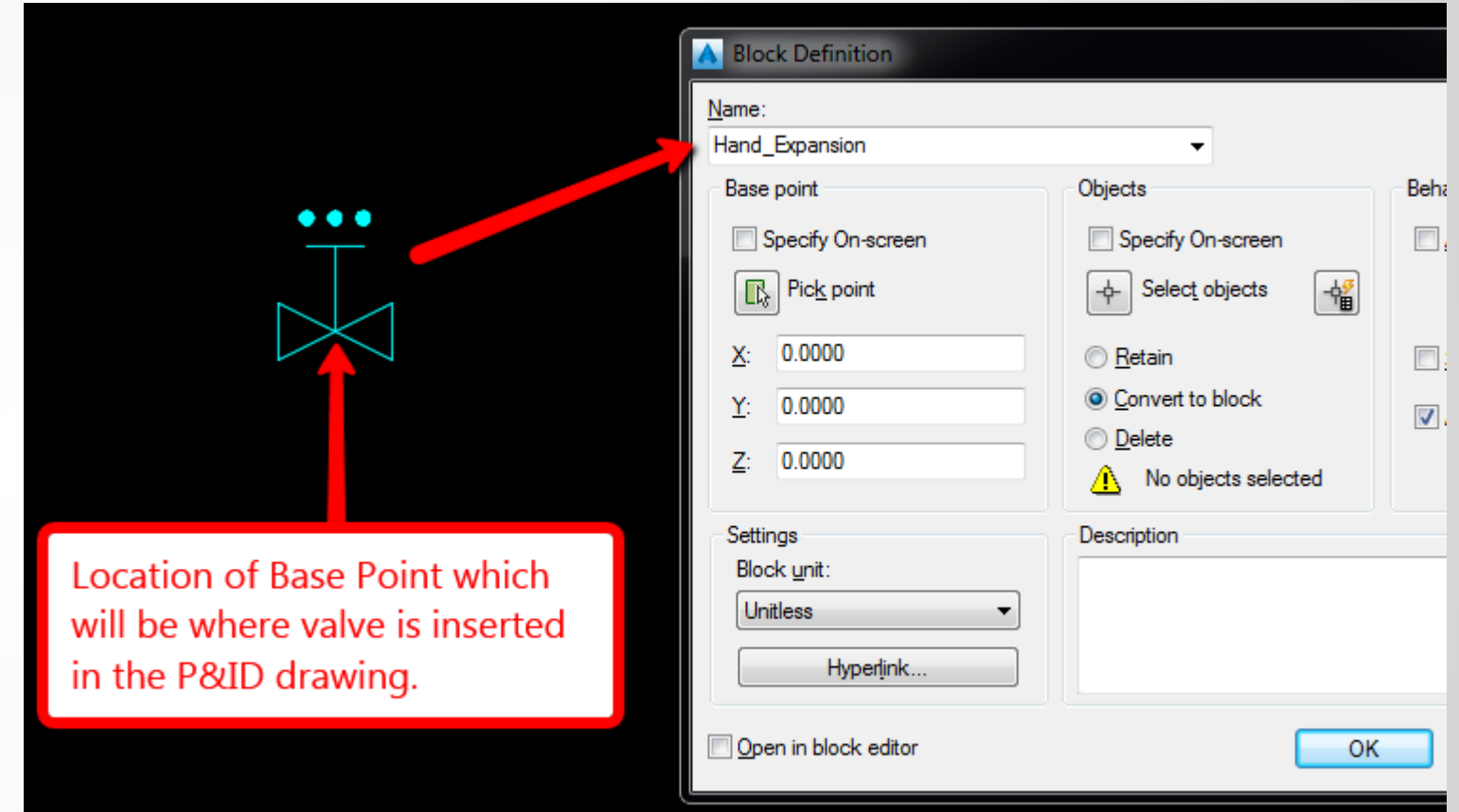


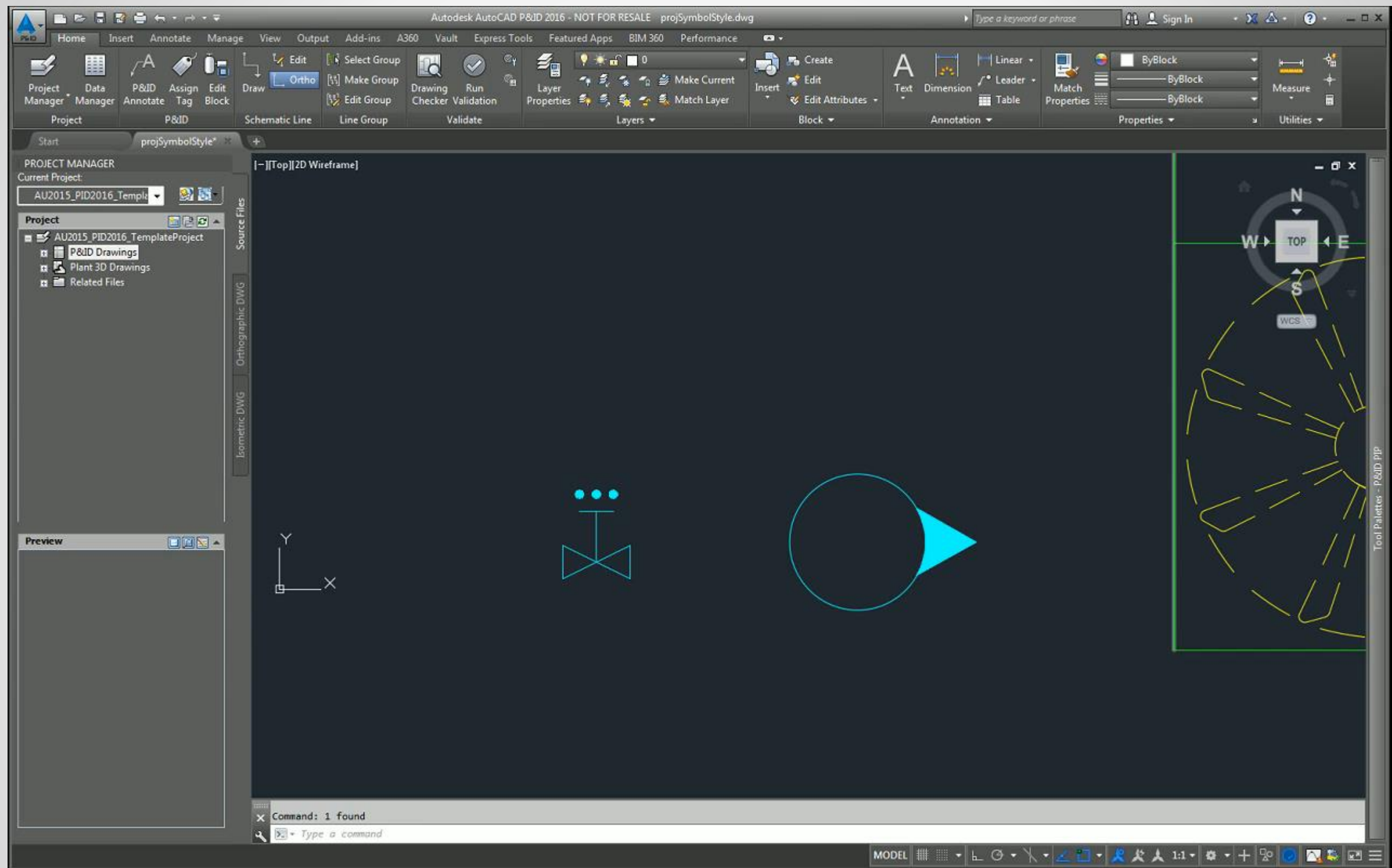
Inline Asset – Valve  
Hand Expansion



# Blocking Symbols

- Open projSymbolStyle.dwg
- Drawing custom symbols
- Use previously created symbols
- Naming blocks
- Picking Base Point





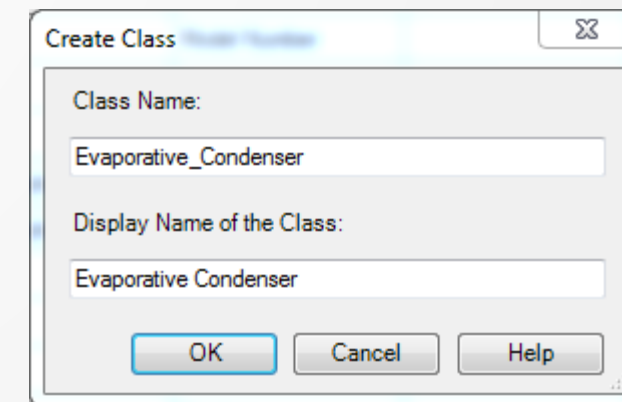
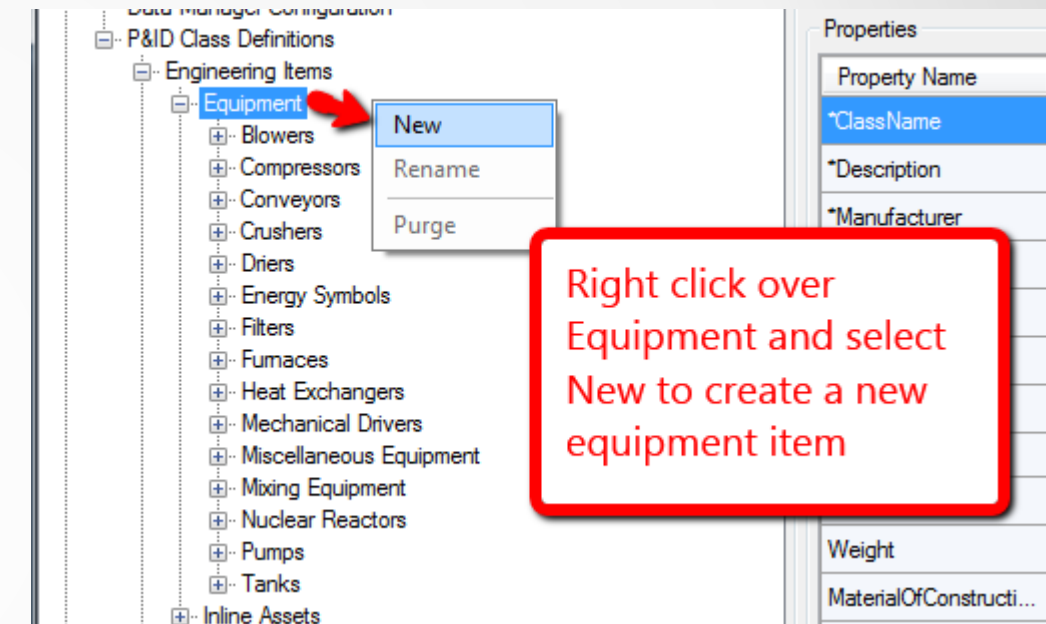
<http://autode.sk/1IWCmE2>



# Custom Symbol Blocks to Project Setup

## Equipment – Evaporative Condenser

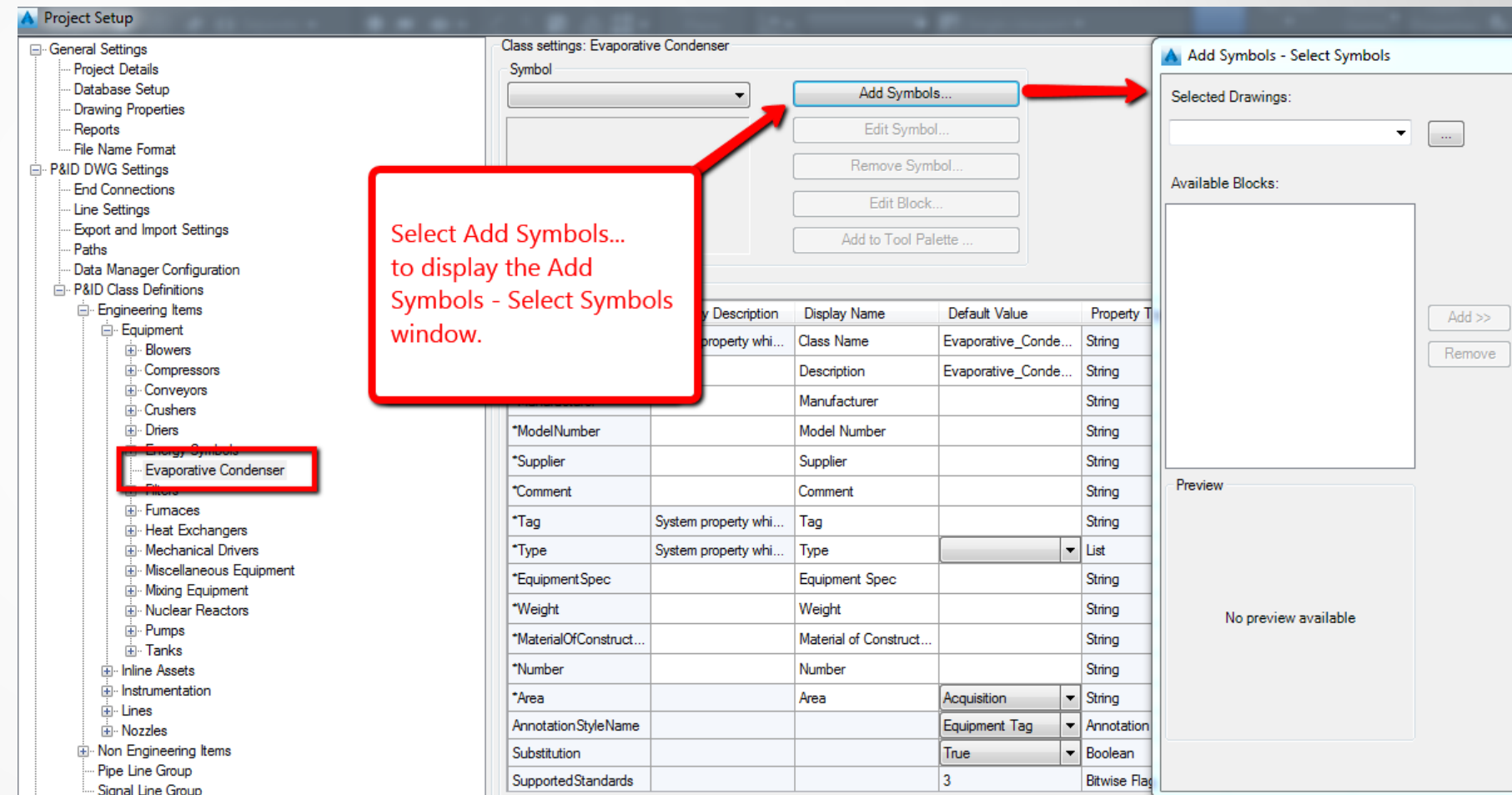
- Access Project Setup
- Navigate to Equipment
- Create new Equipment item



# Custom Symbol Blocks to Project Setup

## Equipment – Evaporative Condenser

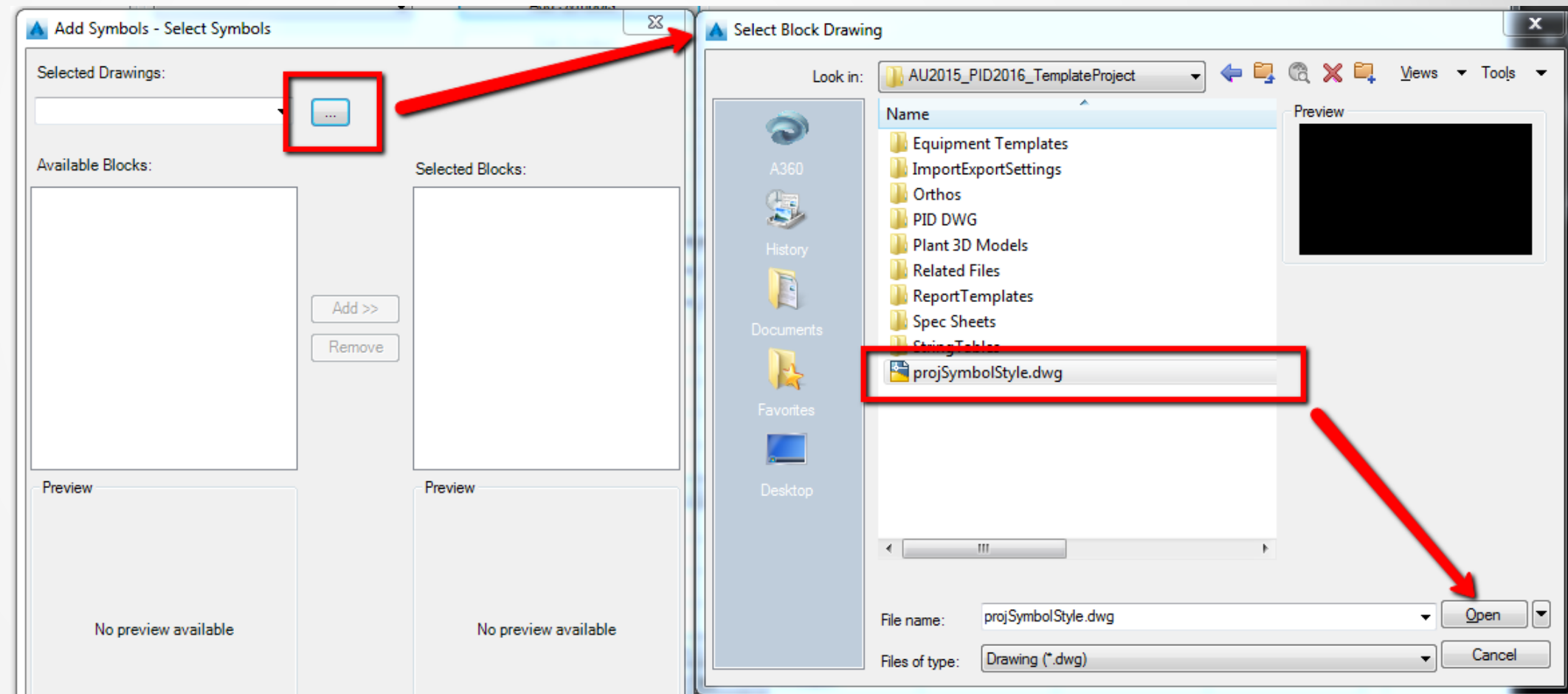
- Adding Symbol to new Equipment class



# Custom Symbol Blocks to Project Setup

## Equipment – Evaporative Condenser

- Select drawing to pull symbols from

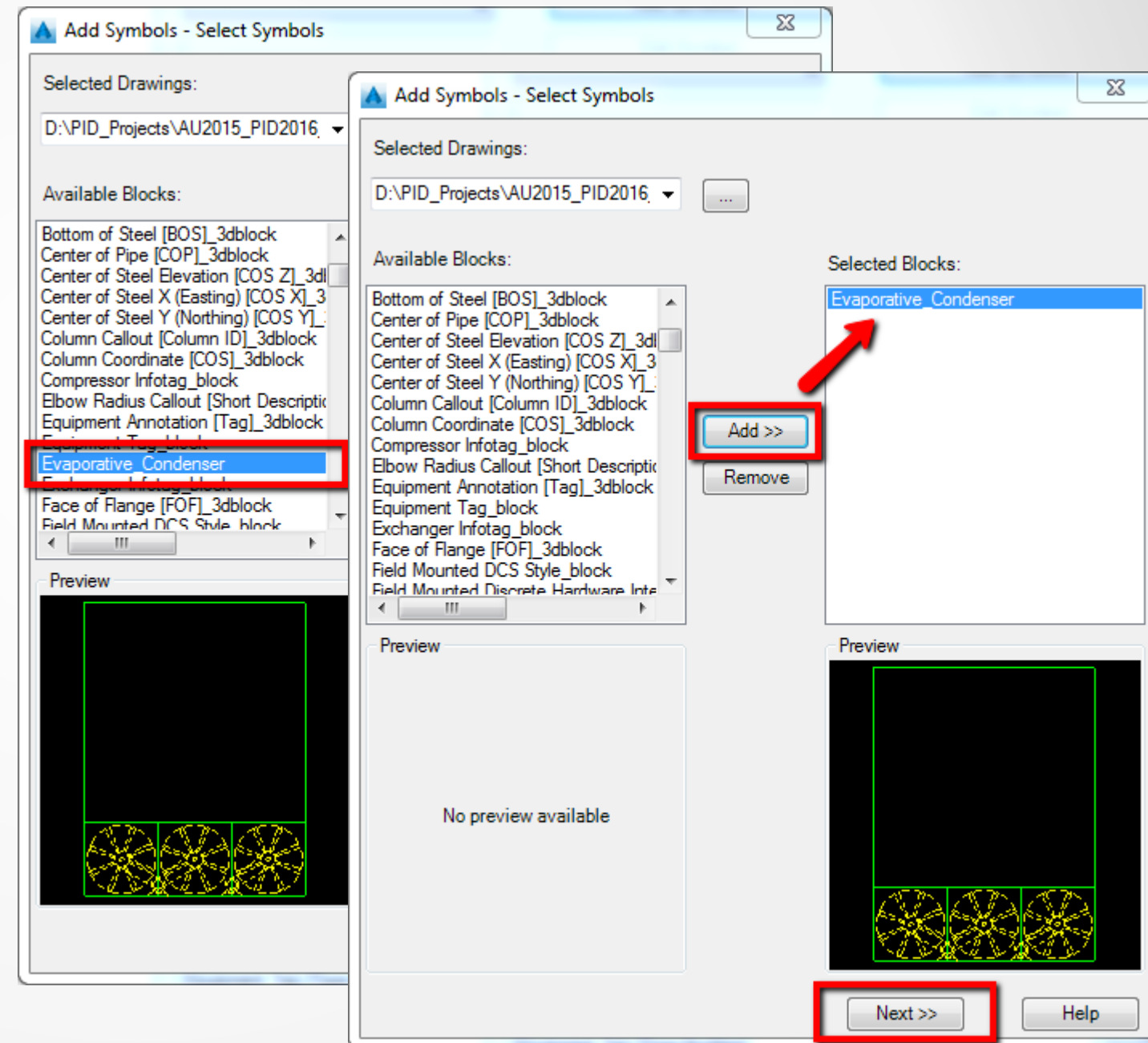




# Custom Symbol Blocks to Project Setup

## Equipment – Evaporative Condenser

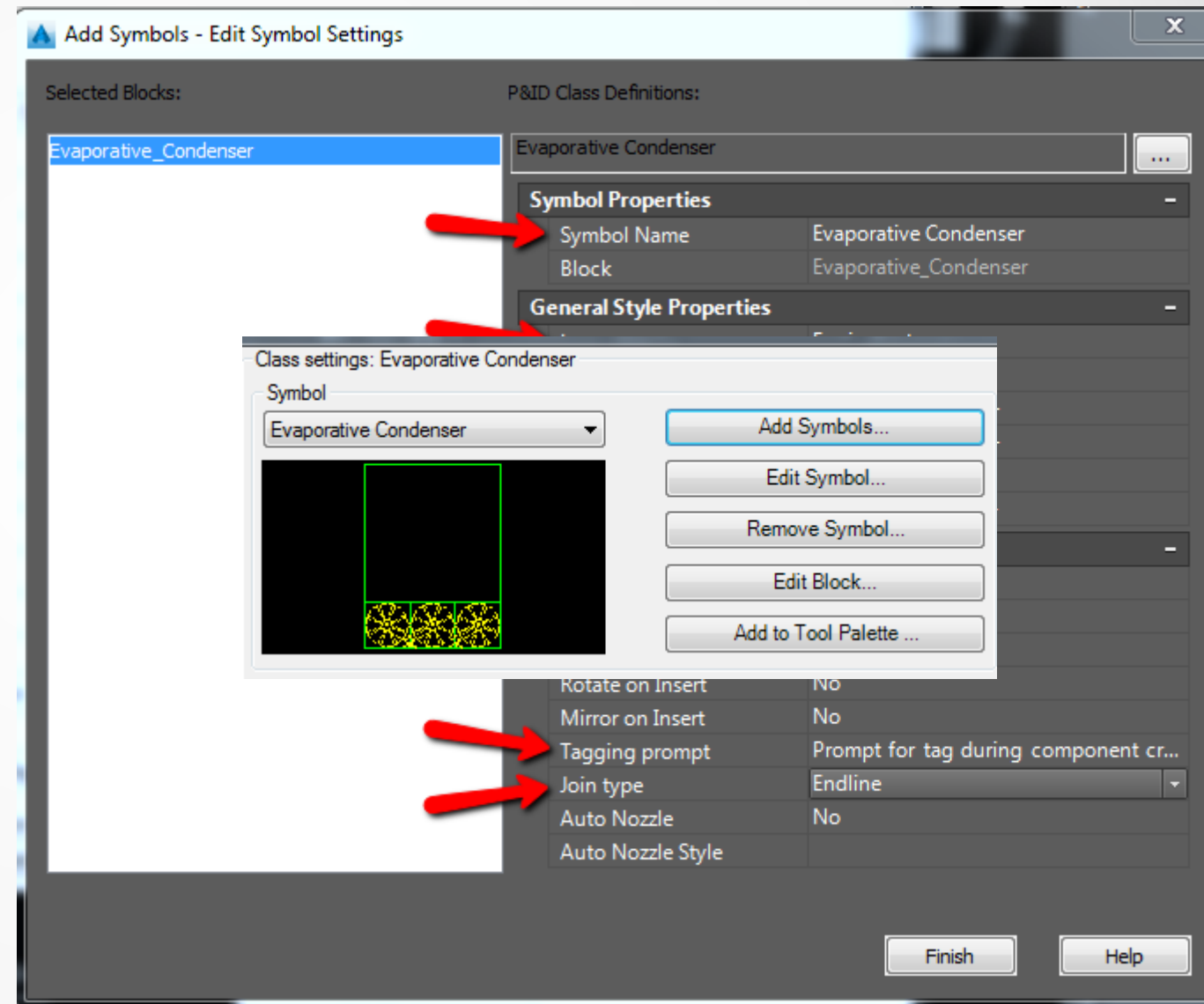
- Choose from available blocks
- Add block to move to selected blocks

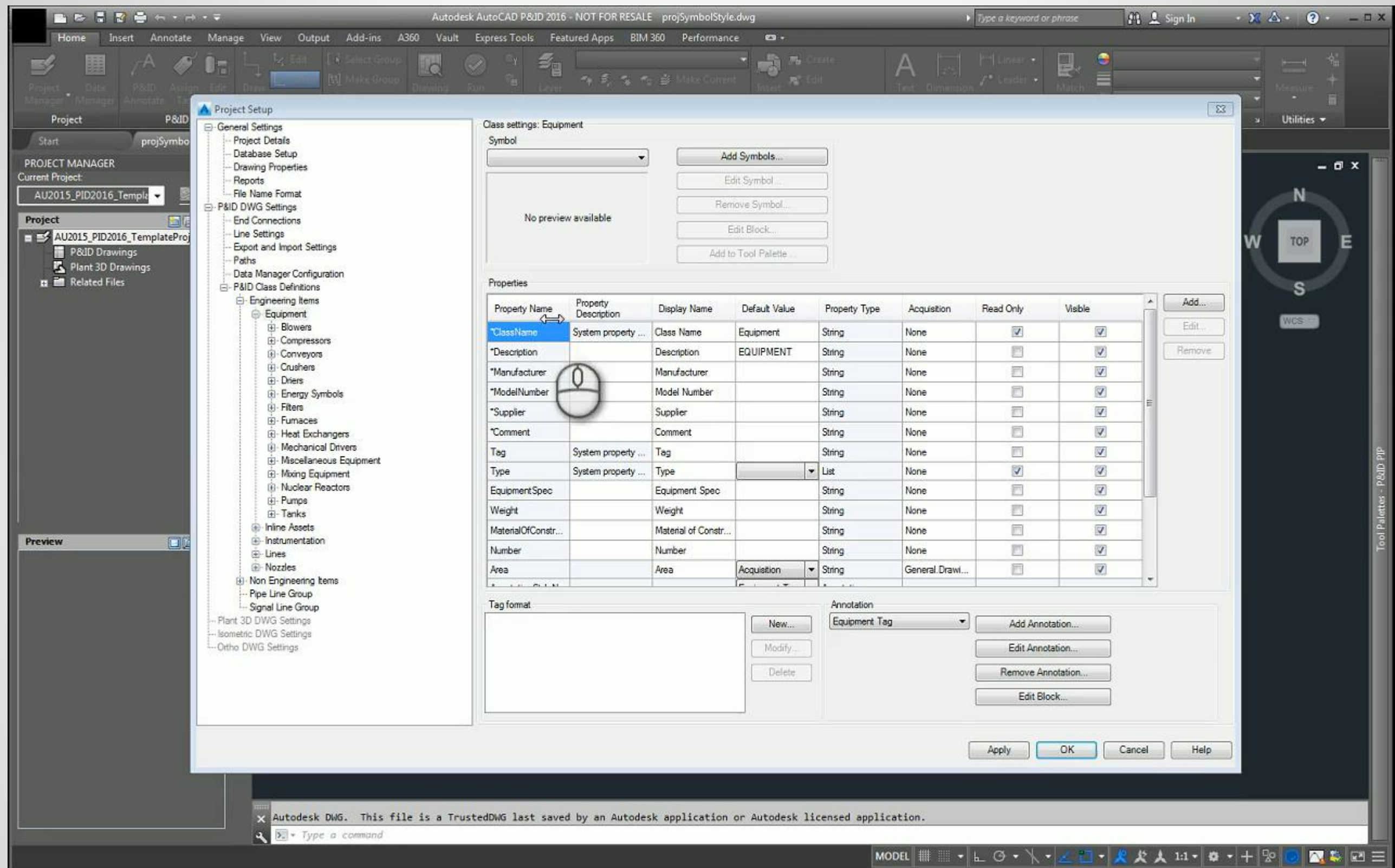


# Custom Symbol Blocks to Project Setup

## Equipment – Evaporative Condenser

- Symbol Name named to *Evaporative\_Condenser*
- Layer set to *Equipment*
- Color set to *ByLayer*
- Tagging Prompt set to *Prompt for tag during component creation*
- Join Type set to *Endline*





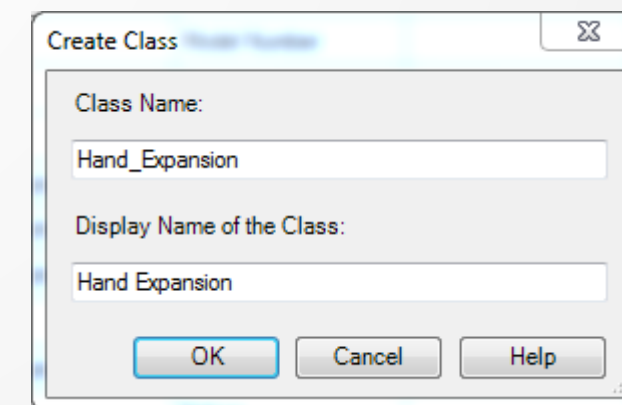
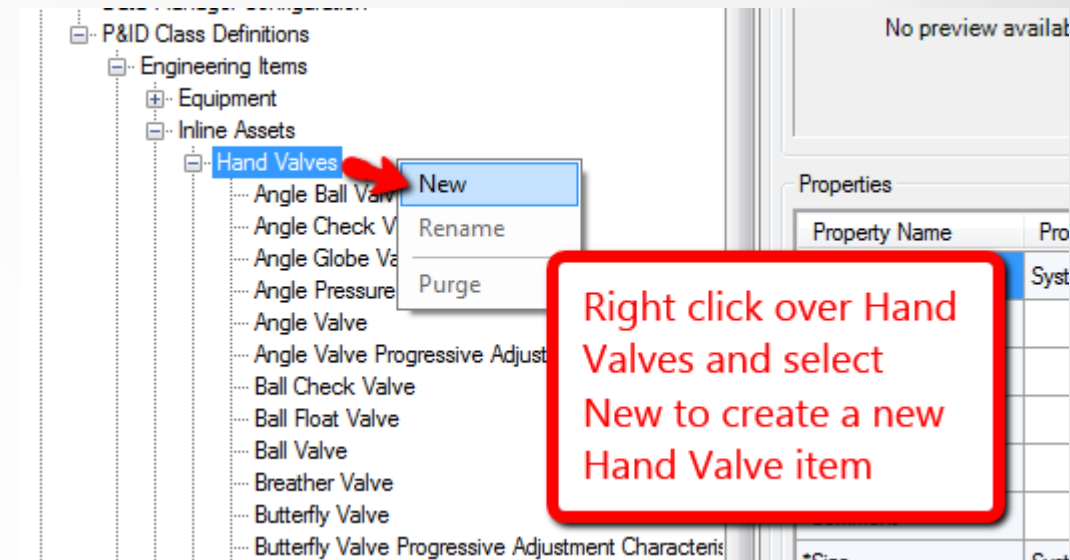
<http://autode.sk/21uqJEA>



# Custom Symbol Blocks to Project Setup

## Hand Valves – Hand Expansion

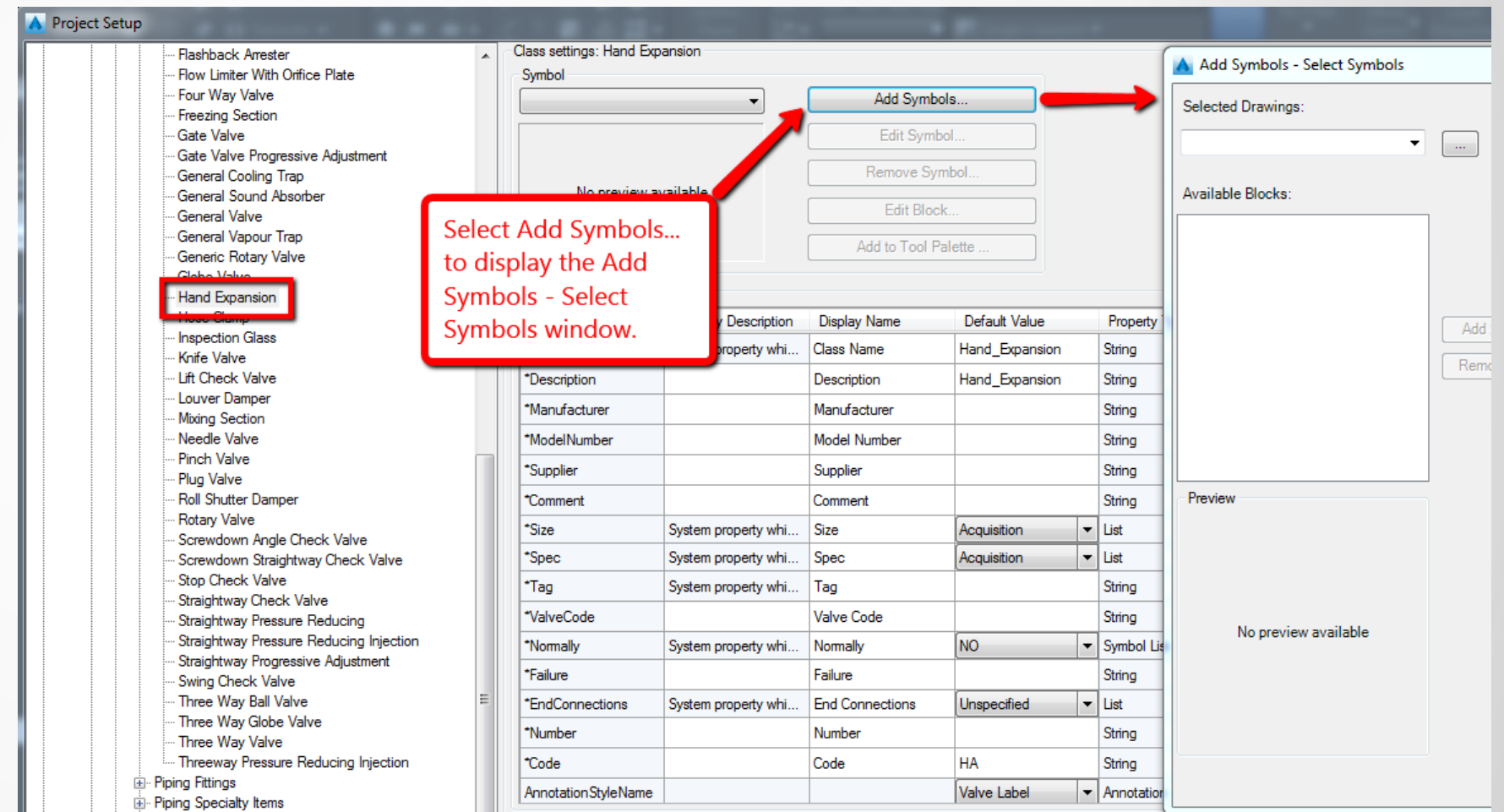
- Access Project Setup
- Navigate to Hand Valves
- Create new Hand Valve item



# Custom Symbol Blocks to Project Setup

## Hand Valves – Hand Expansion

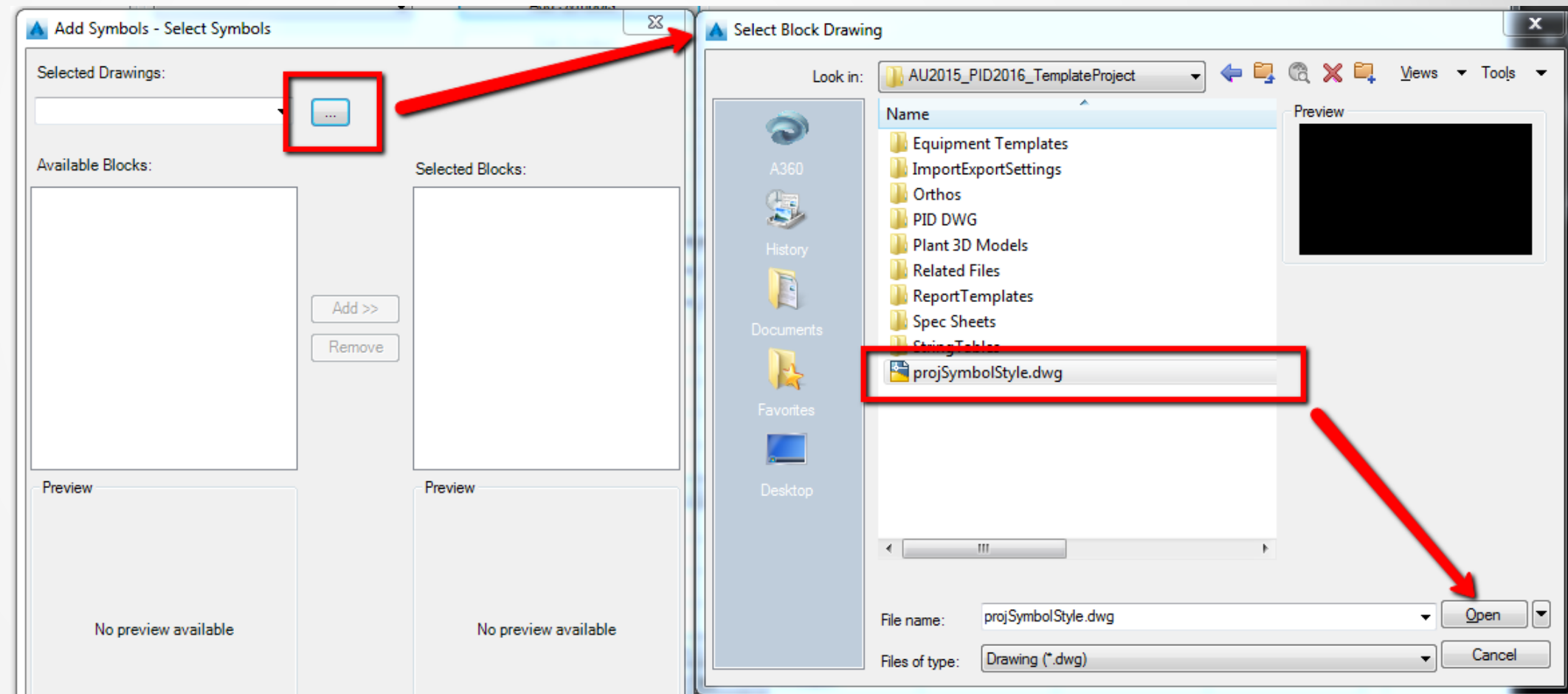
- Adding Symbol to new Hand Valves class



# Custom Symbol Blocks to Project Setup

## Hand Valves – Hand Expansion

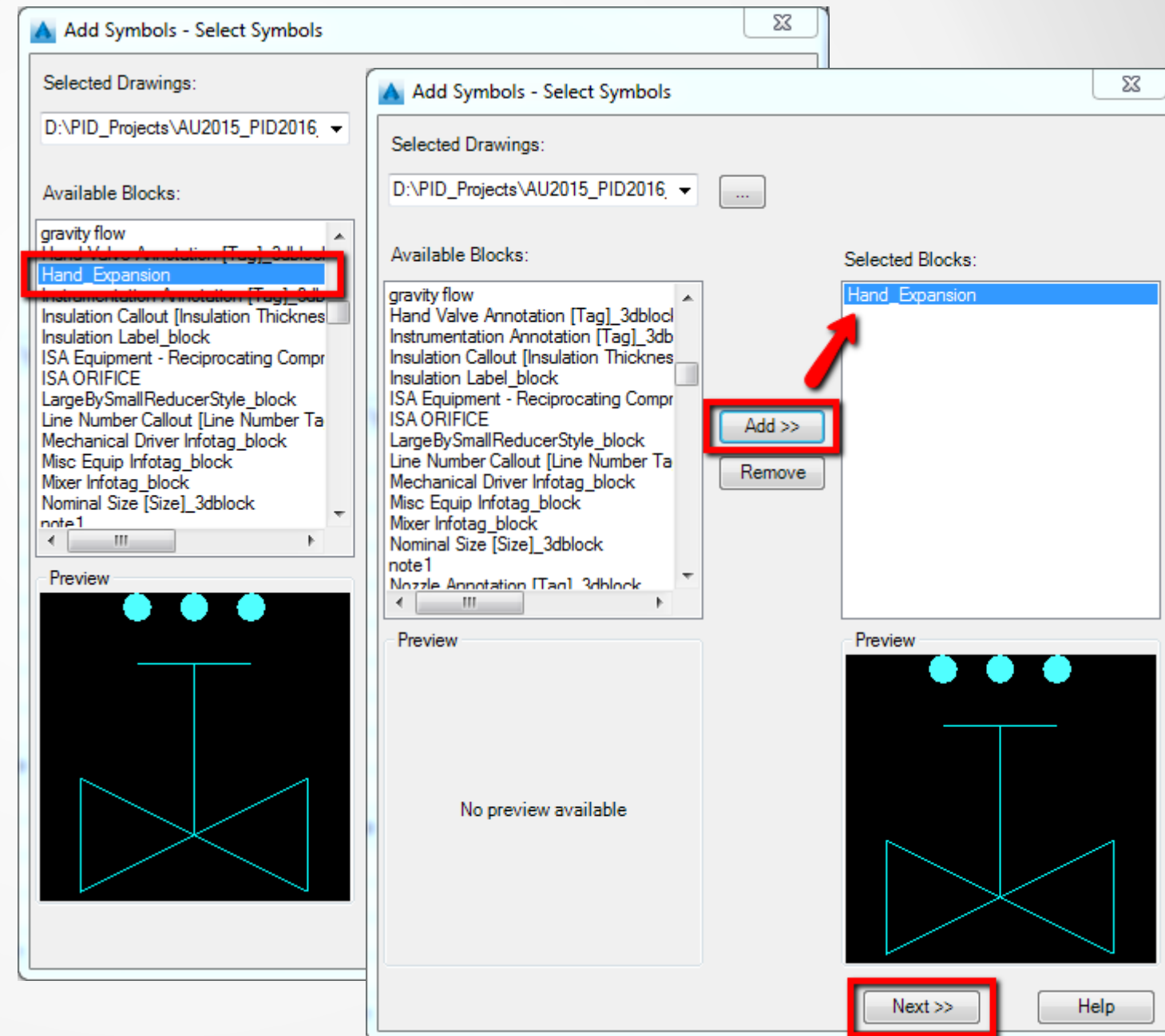
- Select drawing to pull symbols from



# Custom Symbol Blocks to Project Setup

## Hand Valves – Hand Expansion

- Choose from available blocks
- Add block to move to selected blocks

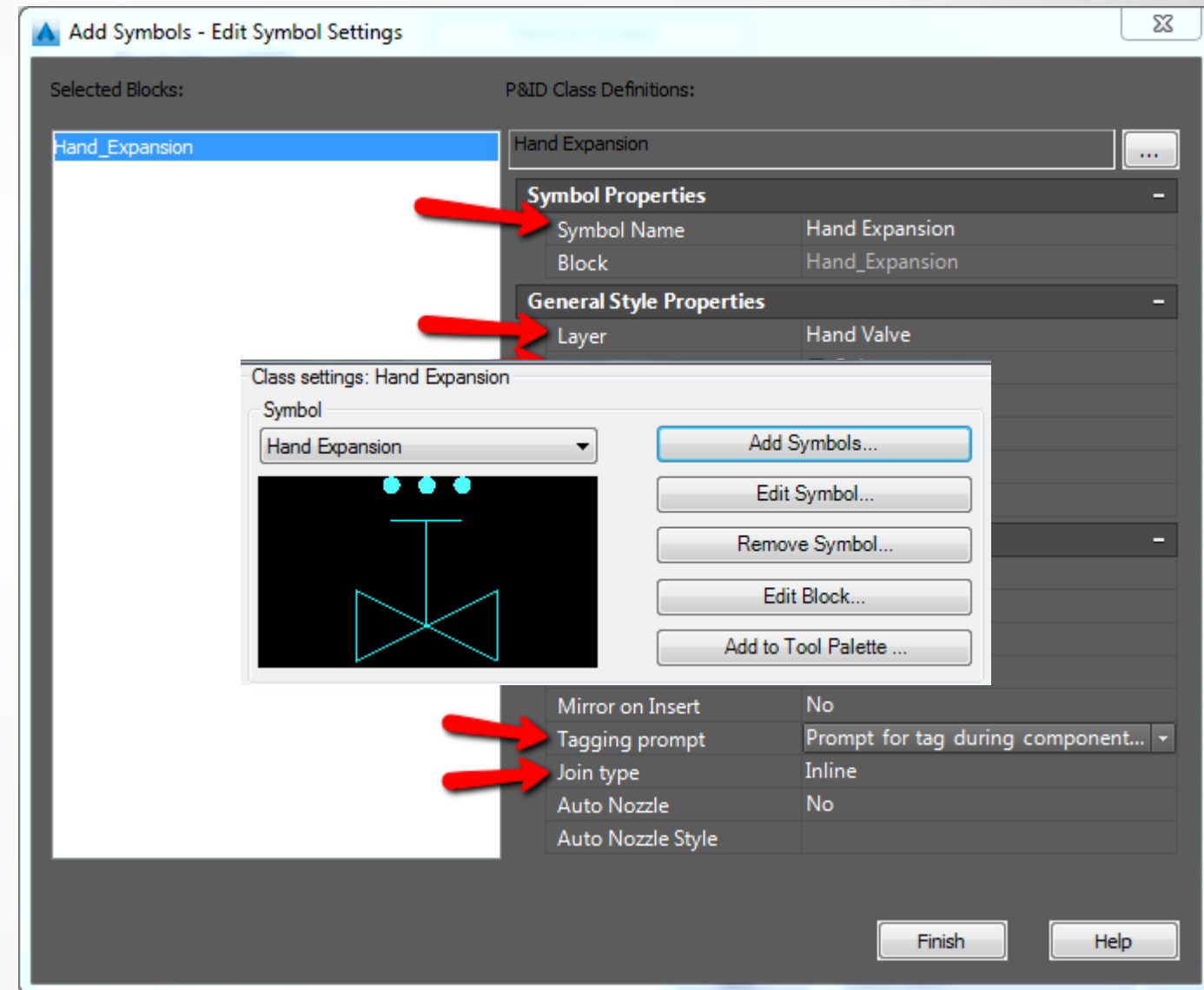


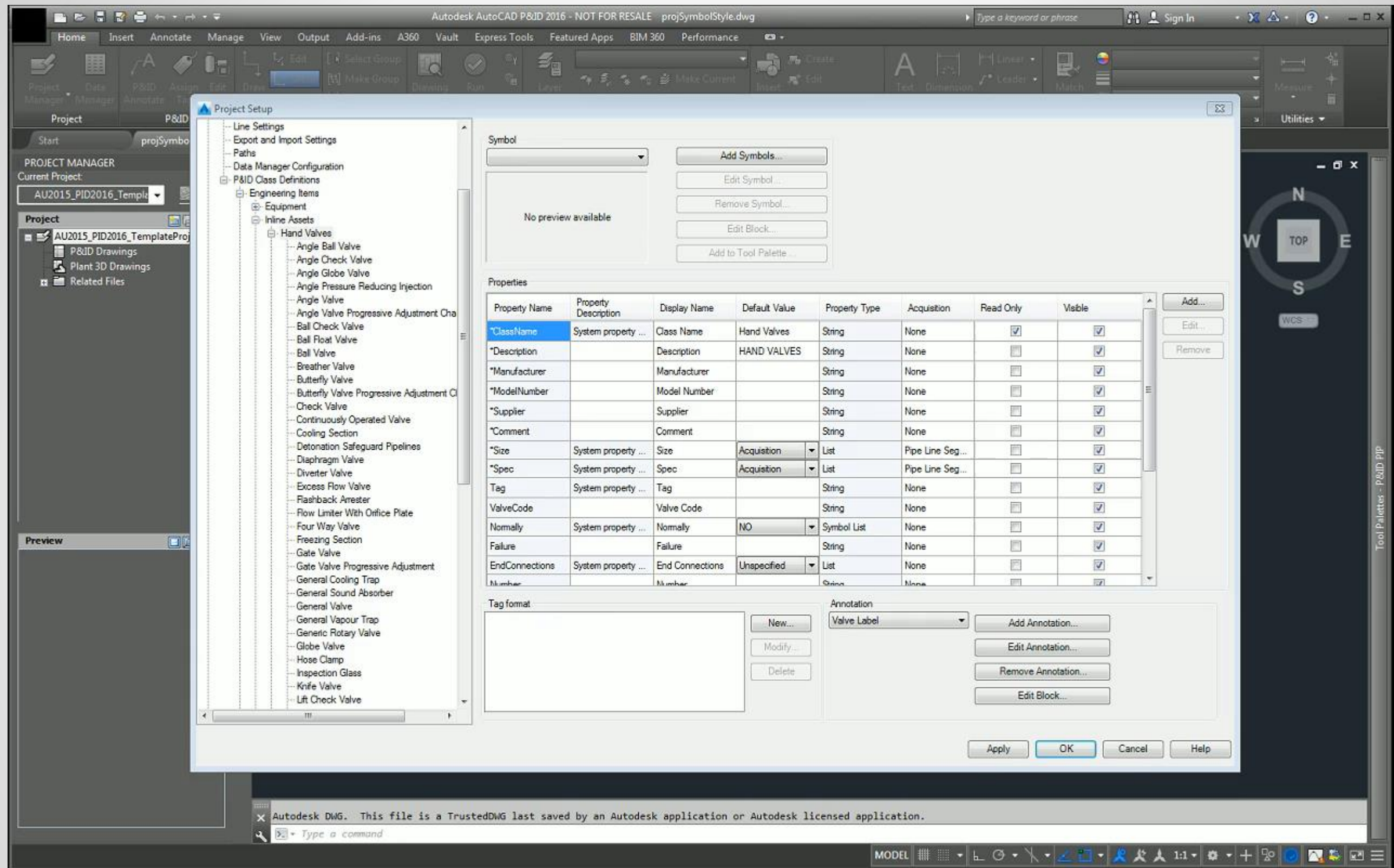


# Custom Symbol Blocks to Project Setup

## Hand Valves – Hand Expansion

- Symbol Name named to  
*Hand\_Expansion*
- Layer set to  
*Hand Valve*
- Color set to  
*ByLayer*
- Tagging Prompt set to  
*Prompt for tag during component creation*
- Join Type set to  
*Inline*



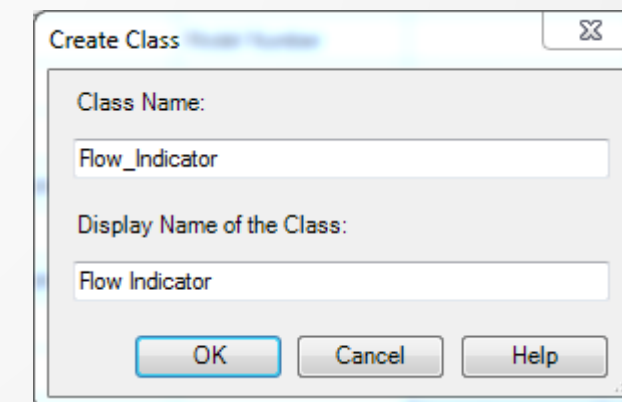
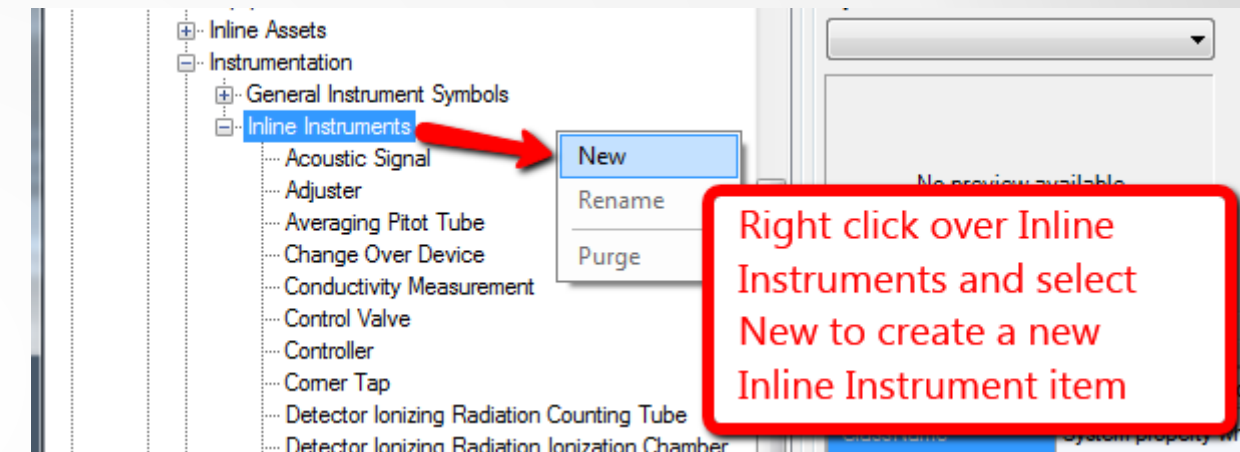


<http://autode.sk/1QTisX2>

# Custom Symbol Blocks to Project Setup

## Inline Instruments – Flow Indicator

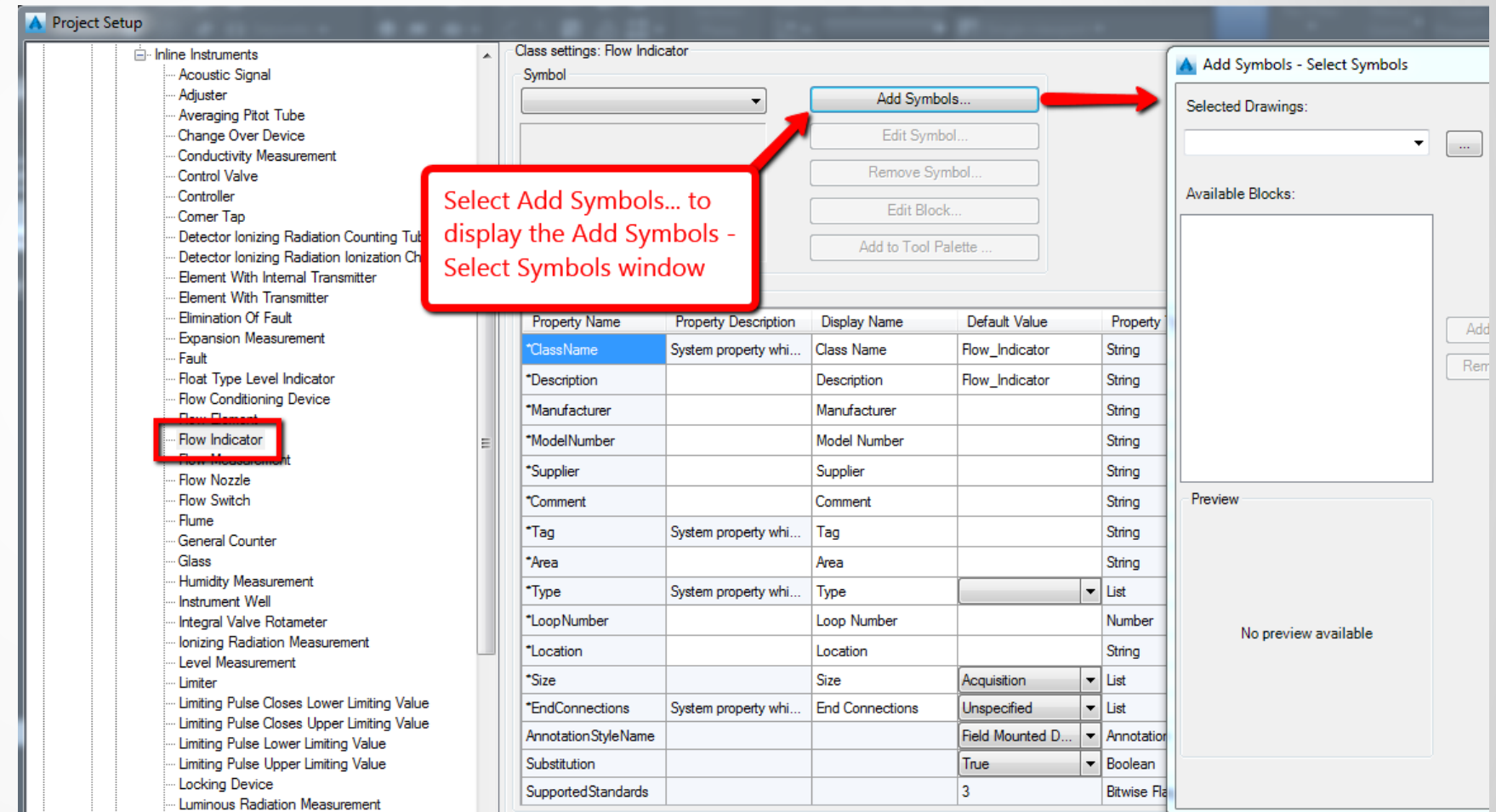
- Access Project Setup
- Navigate to Inline Instruments
- Create new Flow Indicator item



# Custom Symbol Blocks to Project Setup

## Inline Instruments – Flow Indicator

- Adding Symbol to new Flow Indicator class

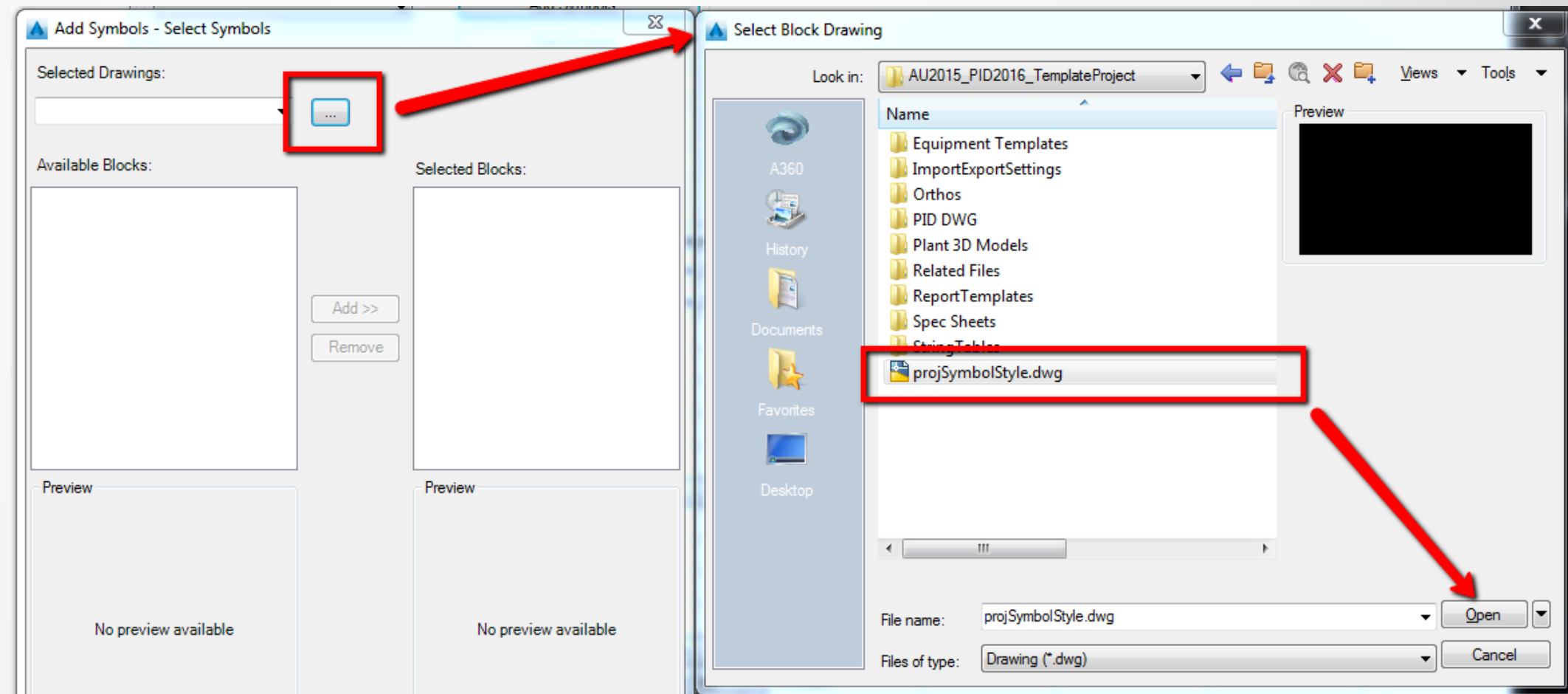




# Custom Symbol Blocks to Project Setup

## Inline Instruments – Flow Indicator

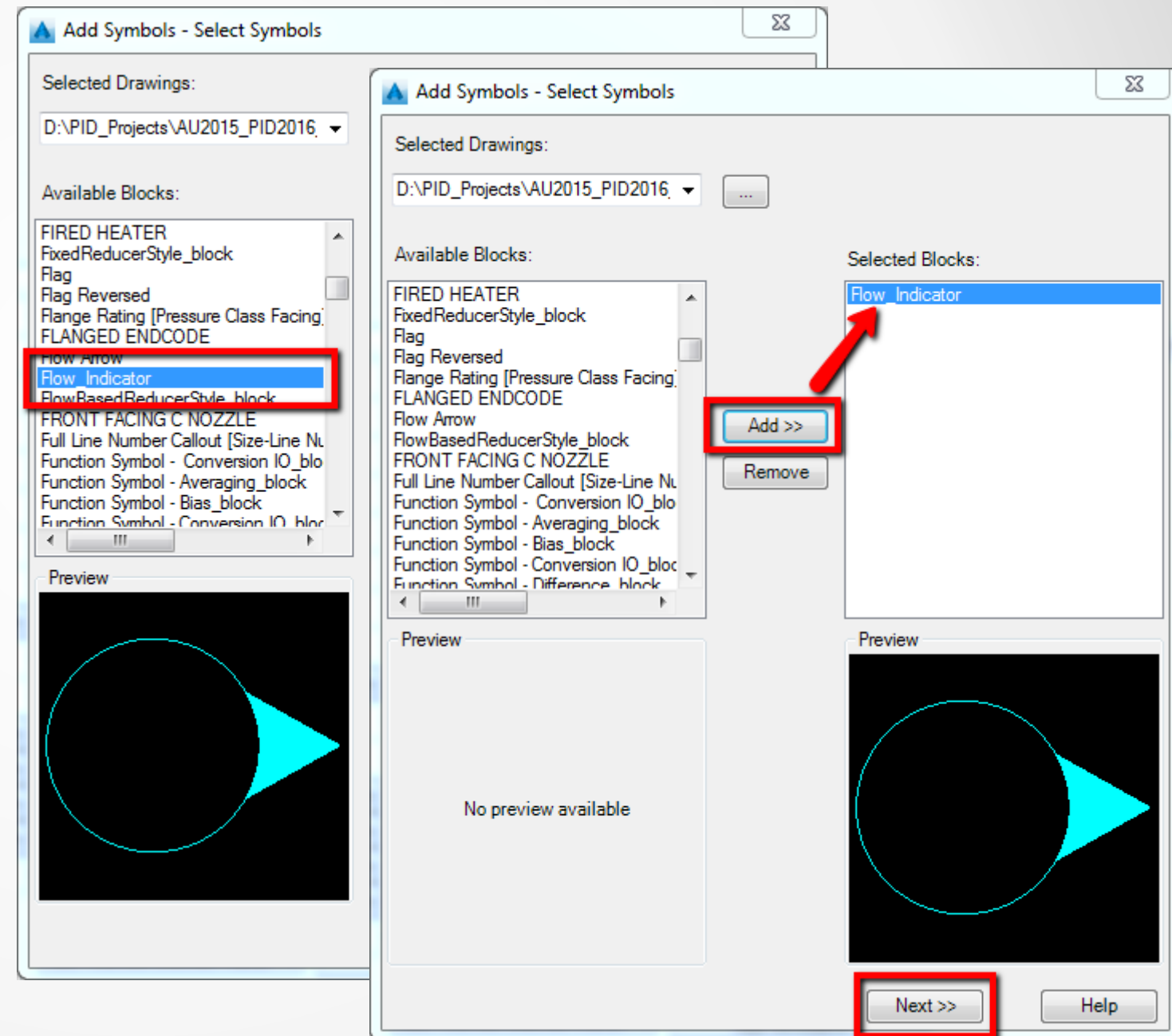
- Select drawing to pull symbols from



# Custom Symbol Blocks to Project Setup

## Inline Instruments – Flow Indicator

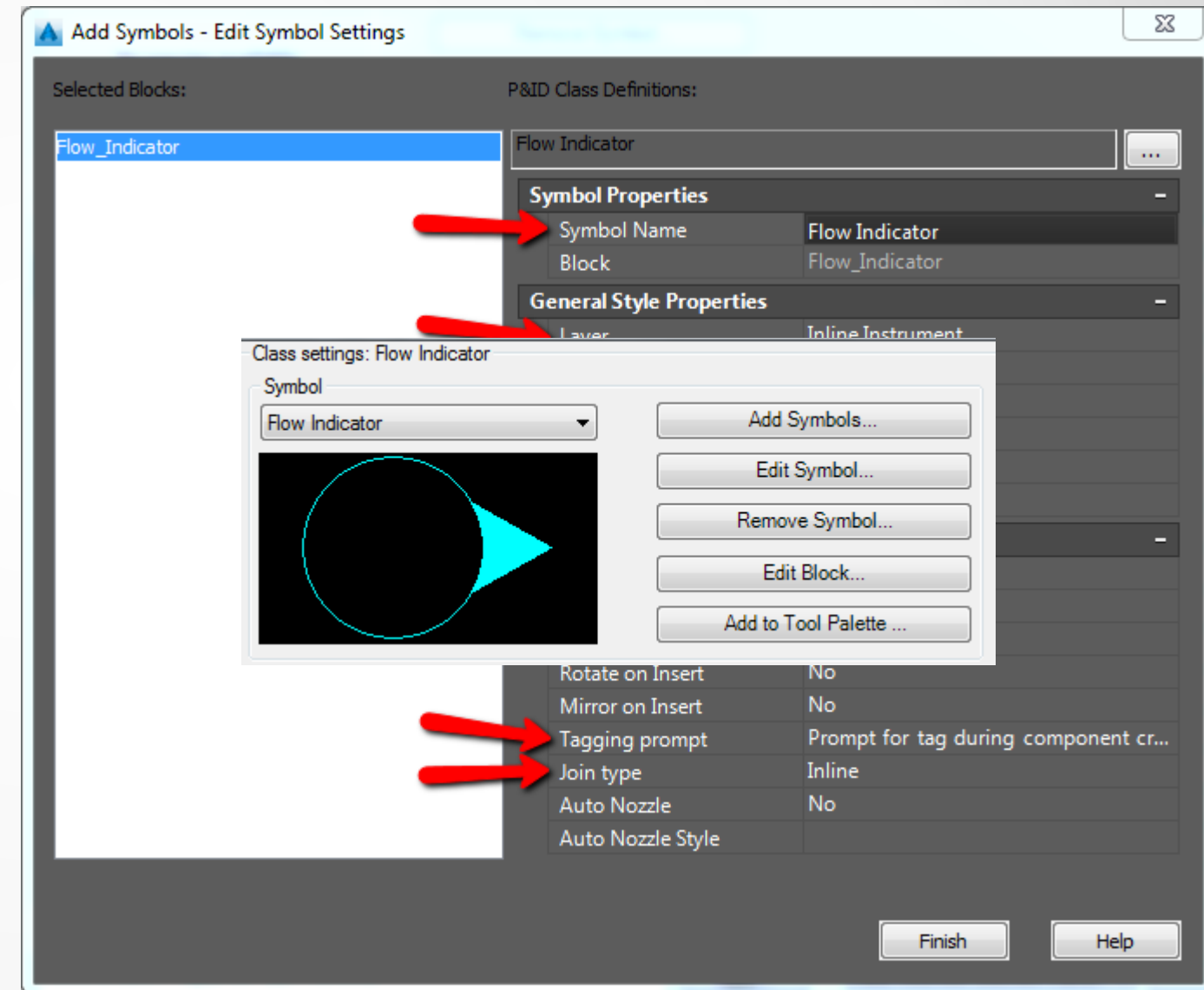
- Choose from available blocks
- Add block to move to selected blocks

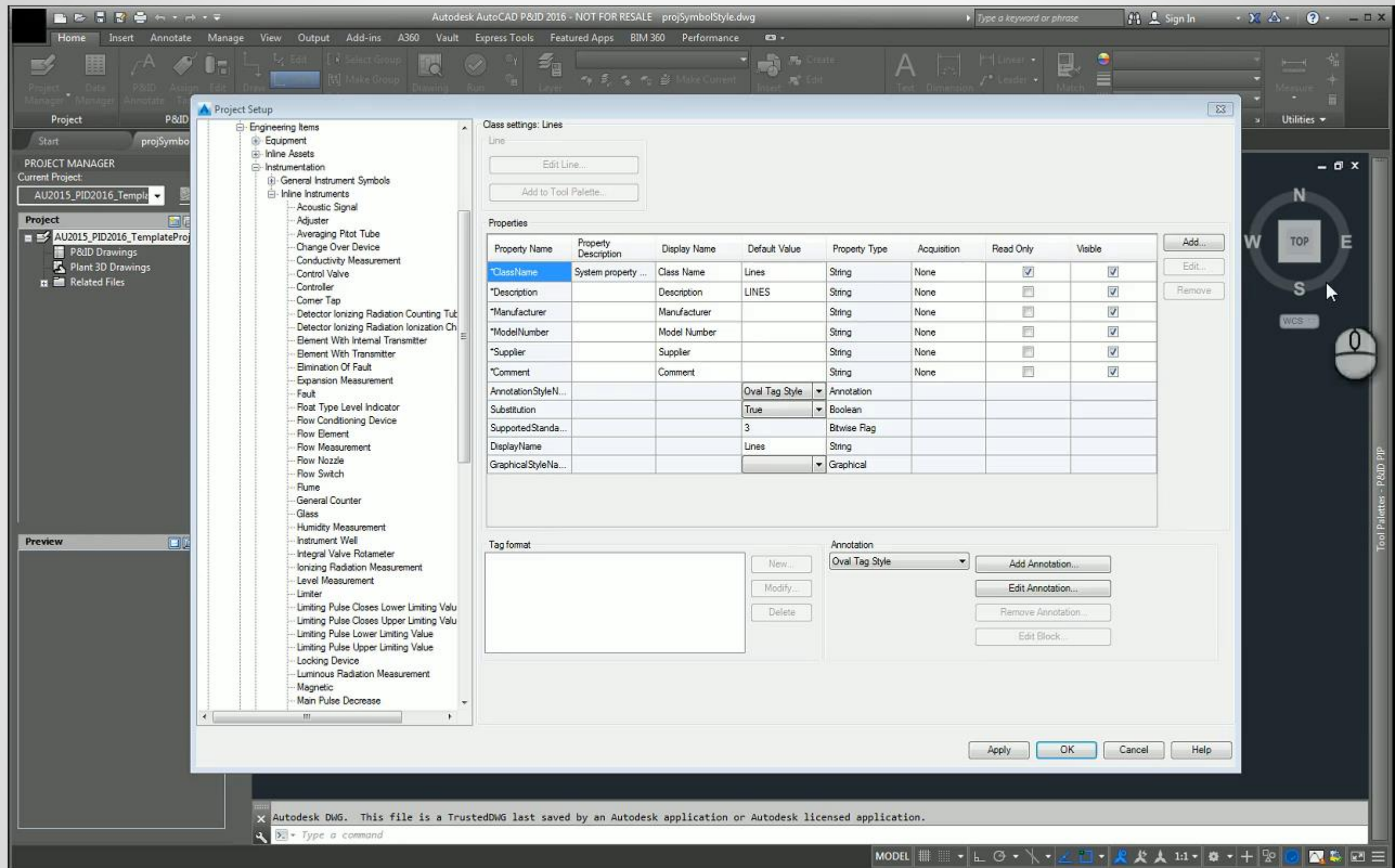


# Custom Symbol Blocks to Project Setup

## Inline Instruments – Flow Indicator

- Symbol Name named to *Flow\_Indicator*
- Layer set to *Inline Instrument*
- Color set to *ByLayer*
- Tagging Prompt set to *Prompt for tag during component creation*
- Join Type set to *Inline*



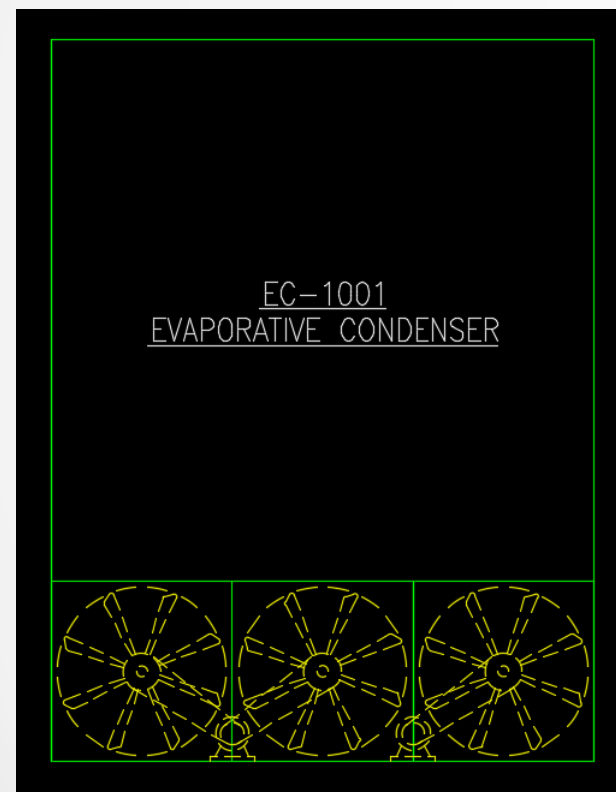


<http://autode.sk/1PuB1kk>

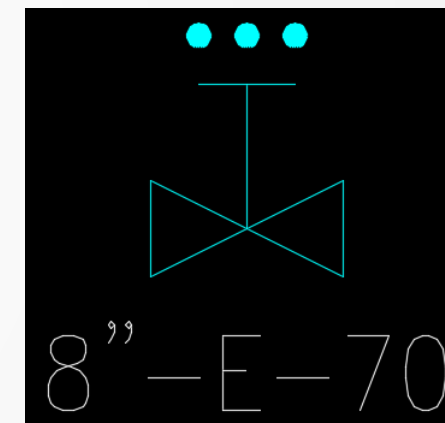


# Demo Tagging

Equipment  
Evaporative Condenser



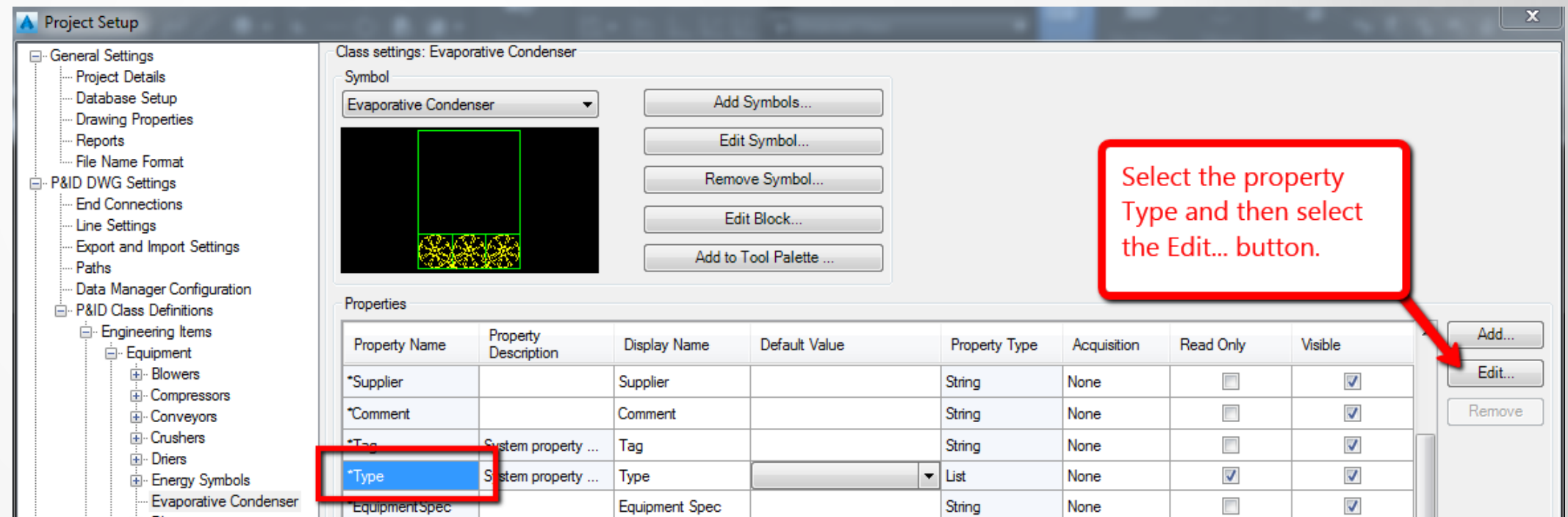
Inline Asset – Valve  
Hand Expansion



# Tag format creation to Project Setup

## Equipment – Evaporative Condenser

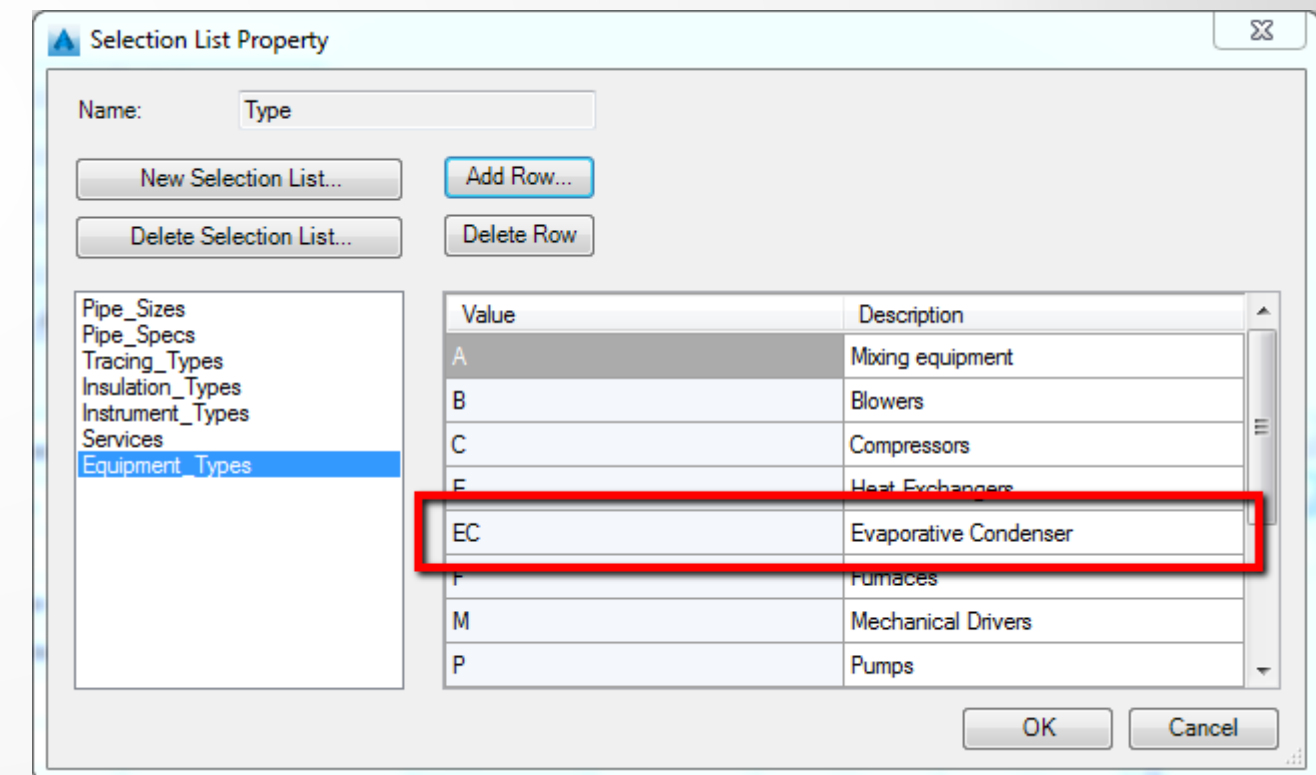
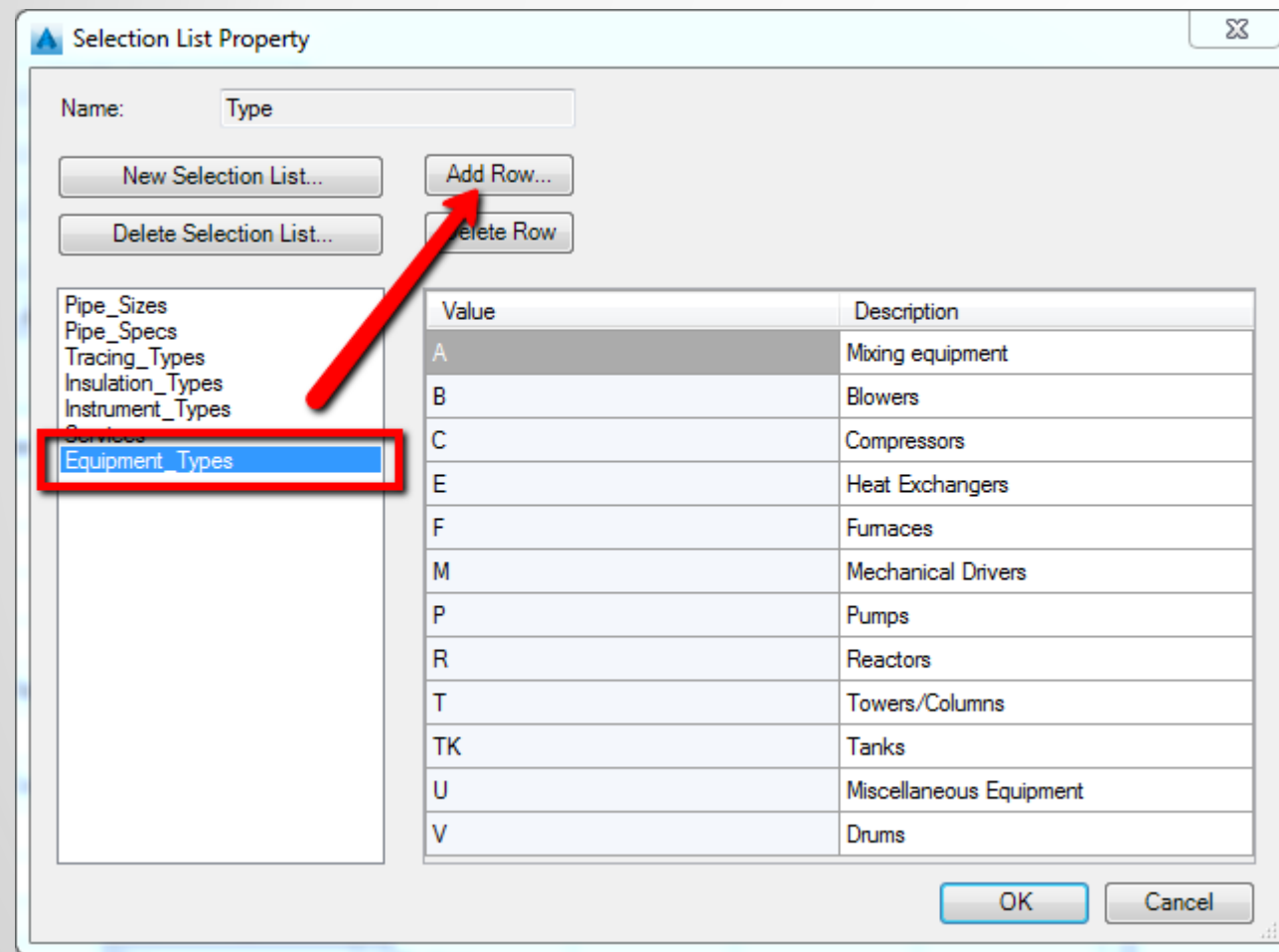
- Access Project Setup
- Navigate to Evaporative Condenser
- Edit property Type



# Tag format creation to Project Setup

## Equipment – Evaporative Condenser

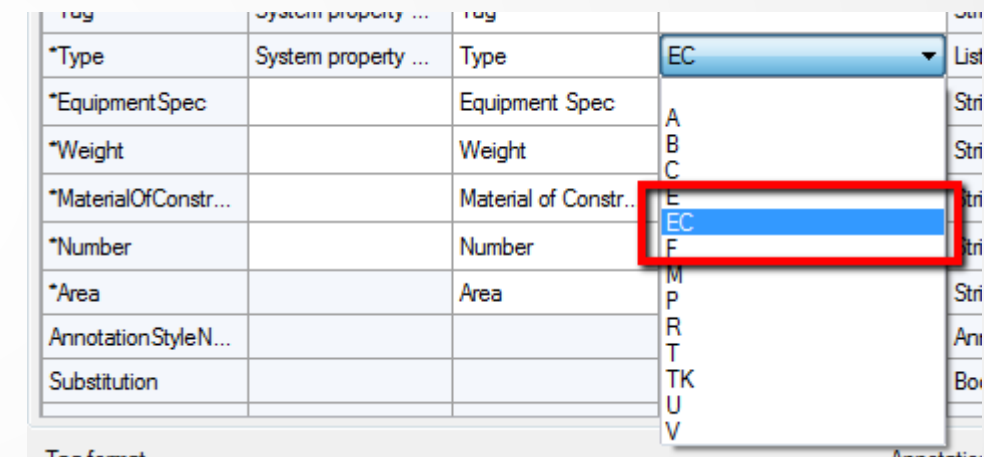
- Modify Equipment\_Types selection list



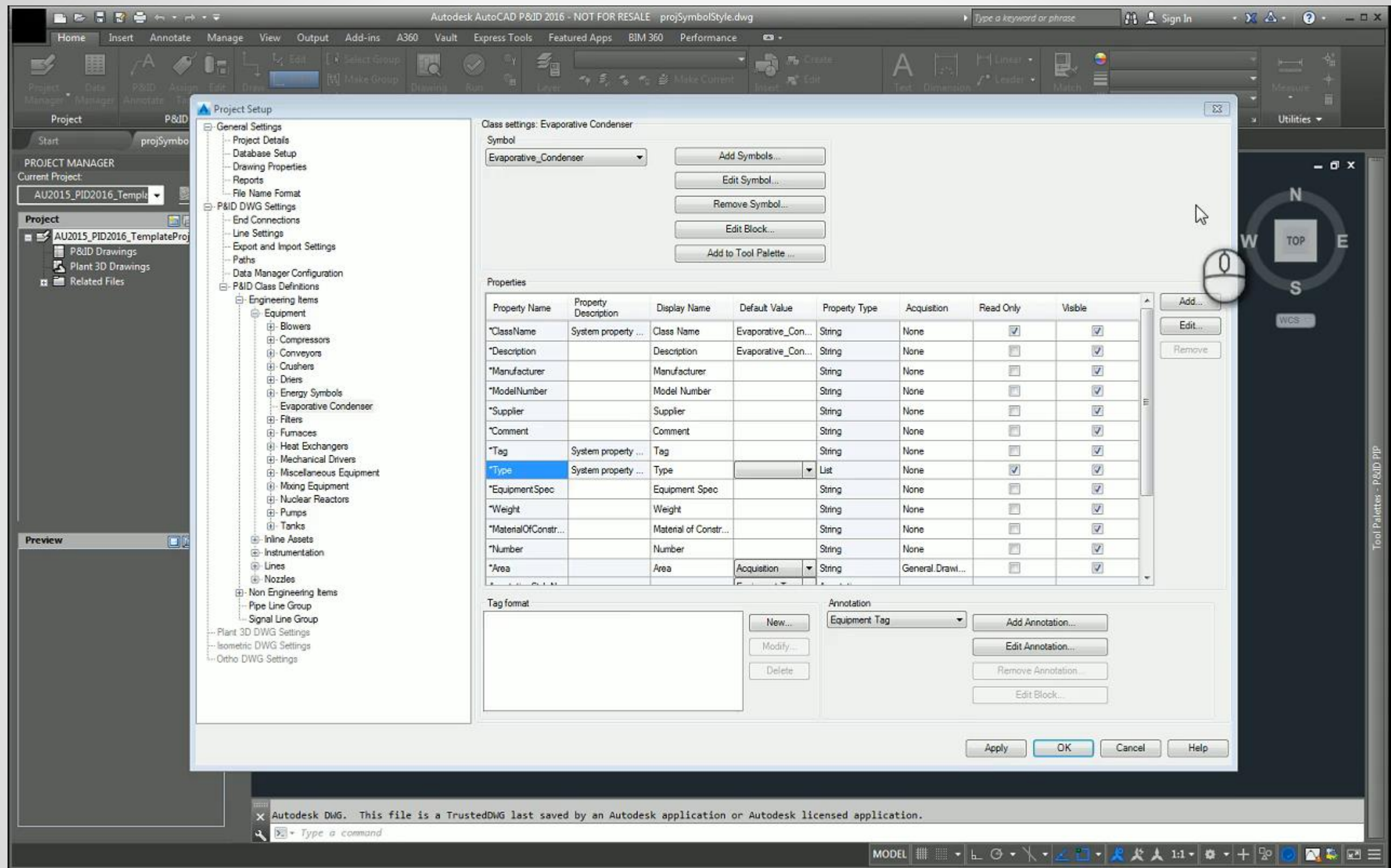
# Tag format creation to Project Setup

## Equipment – Evaporative Condenser

- Setting default for Type in the Project Setup





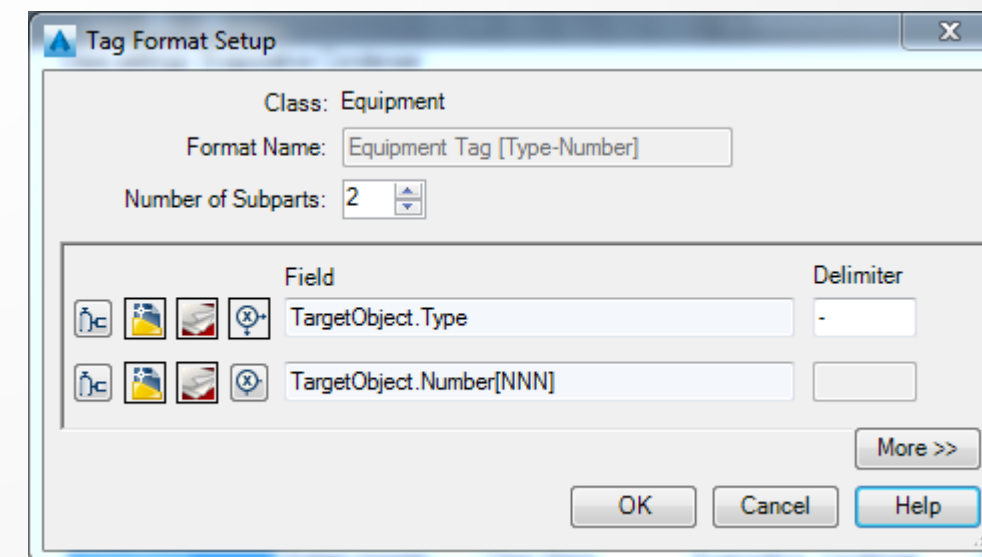
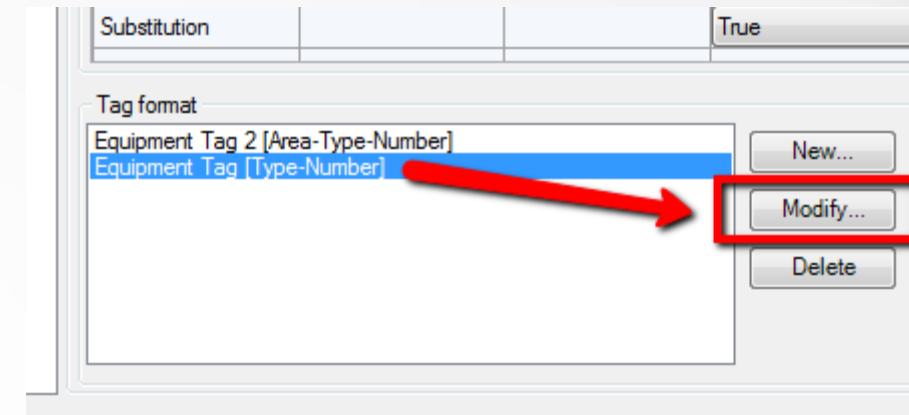


<http://autode.sk/1Nq9q1x>

# Tag format creation to Project Setup

## Equipment – Evaporative Condenser

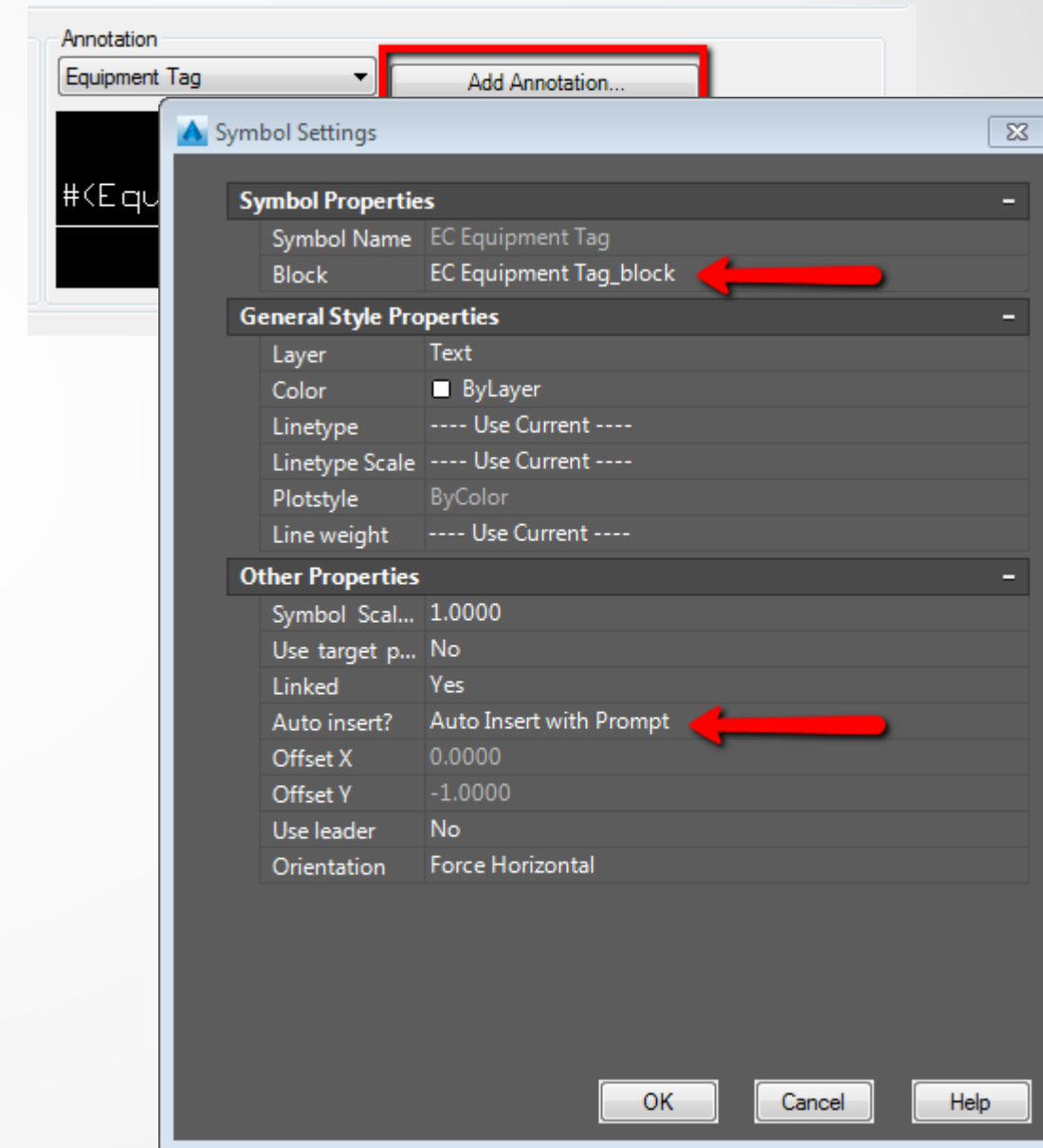
- Modify Tag Format
- Check Tag Format Setup



# Tag format creation to Project Setup

## Equipment – Evaporative Condenser

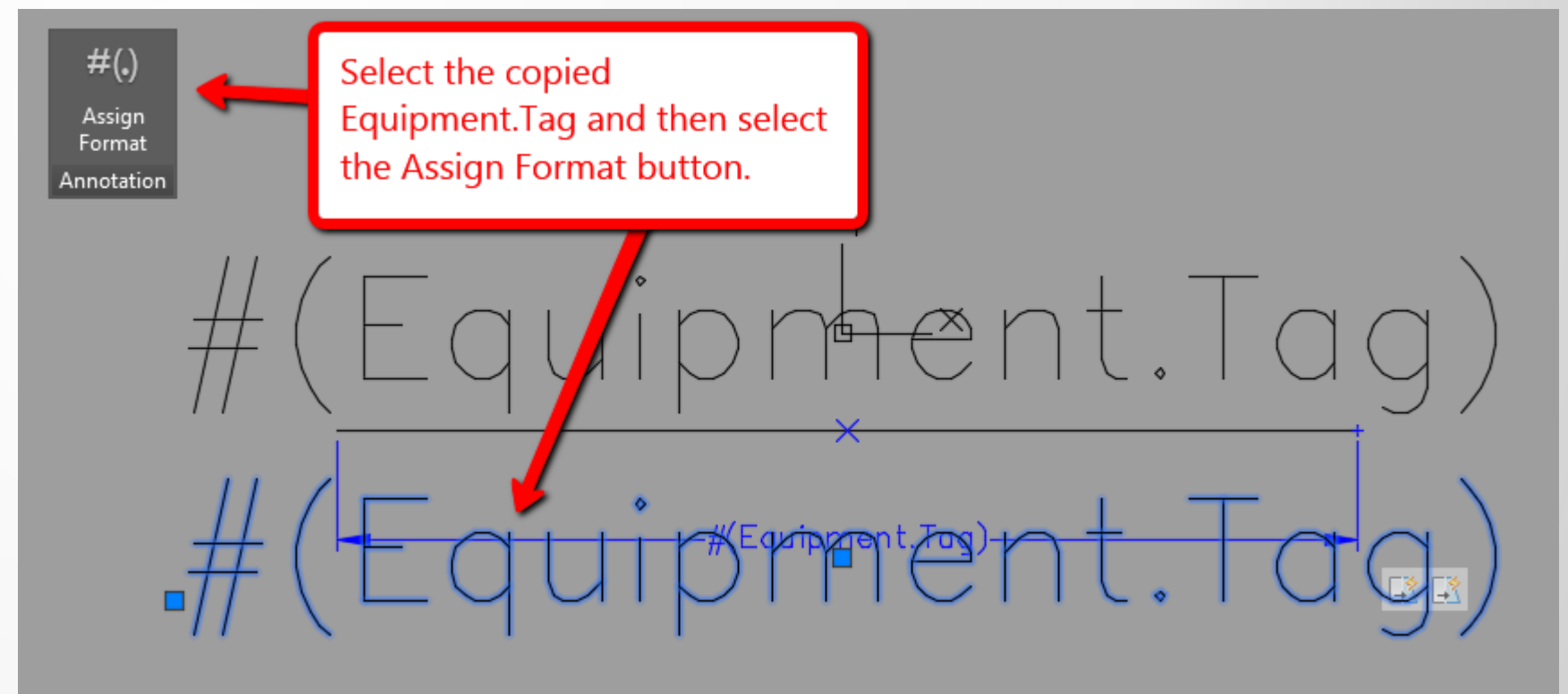
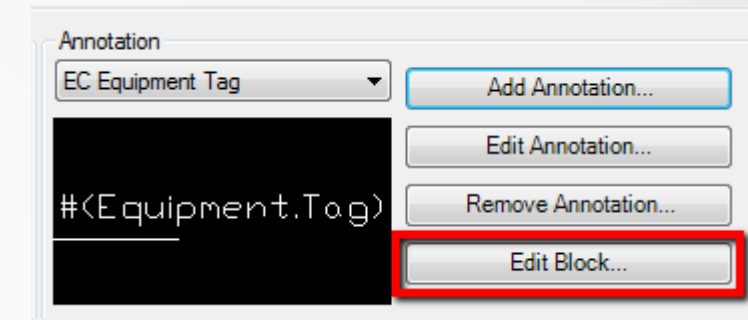
- Modify or Add Annotation
- Check Tag Format Setup
- Adjust Symbol Settings for new annotation



# Tag format creation to Project Setup

## Equipment – Evaporative Condenser

- Edit Block for annotation
- Modify tag format
- Using Assign Format

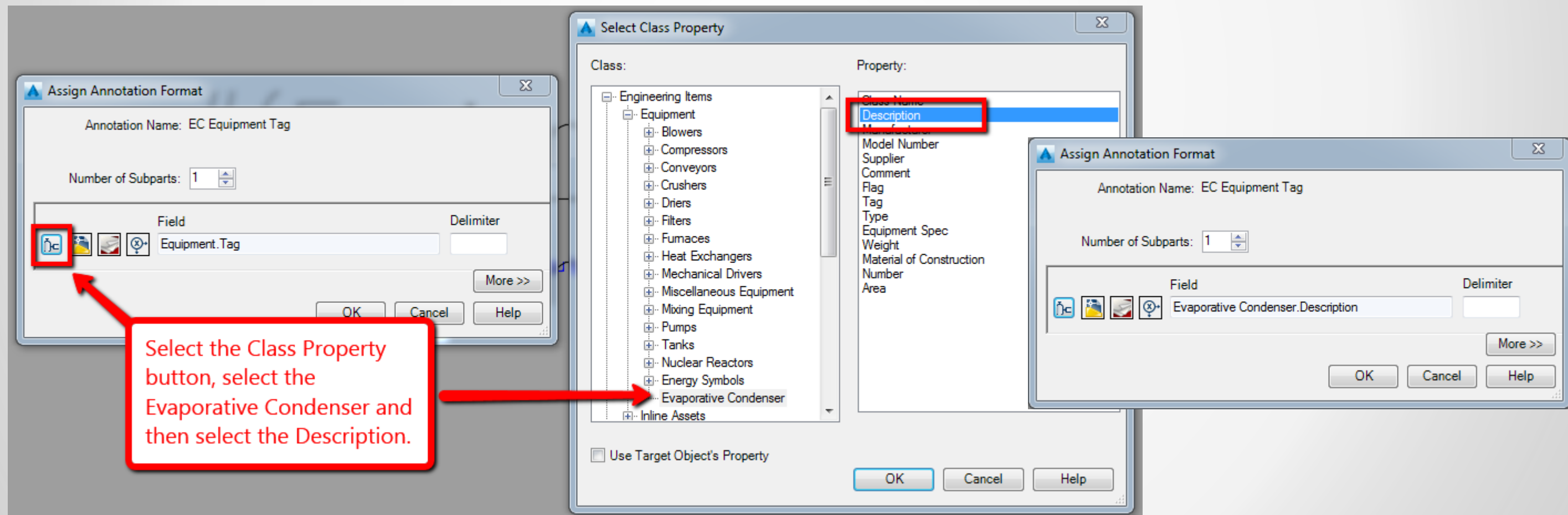




# Tag format creation to Project Setup

## Equipment – Evaporative Condenser

- Assign Annotation Format window
- Select Class Property window



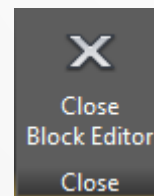
# Tag format creation to Project Setup

## Equipment – Evaporative Condenser

- Tweaking the Tag



- Close Block Editor



# Tag format creation to Project Setup

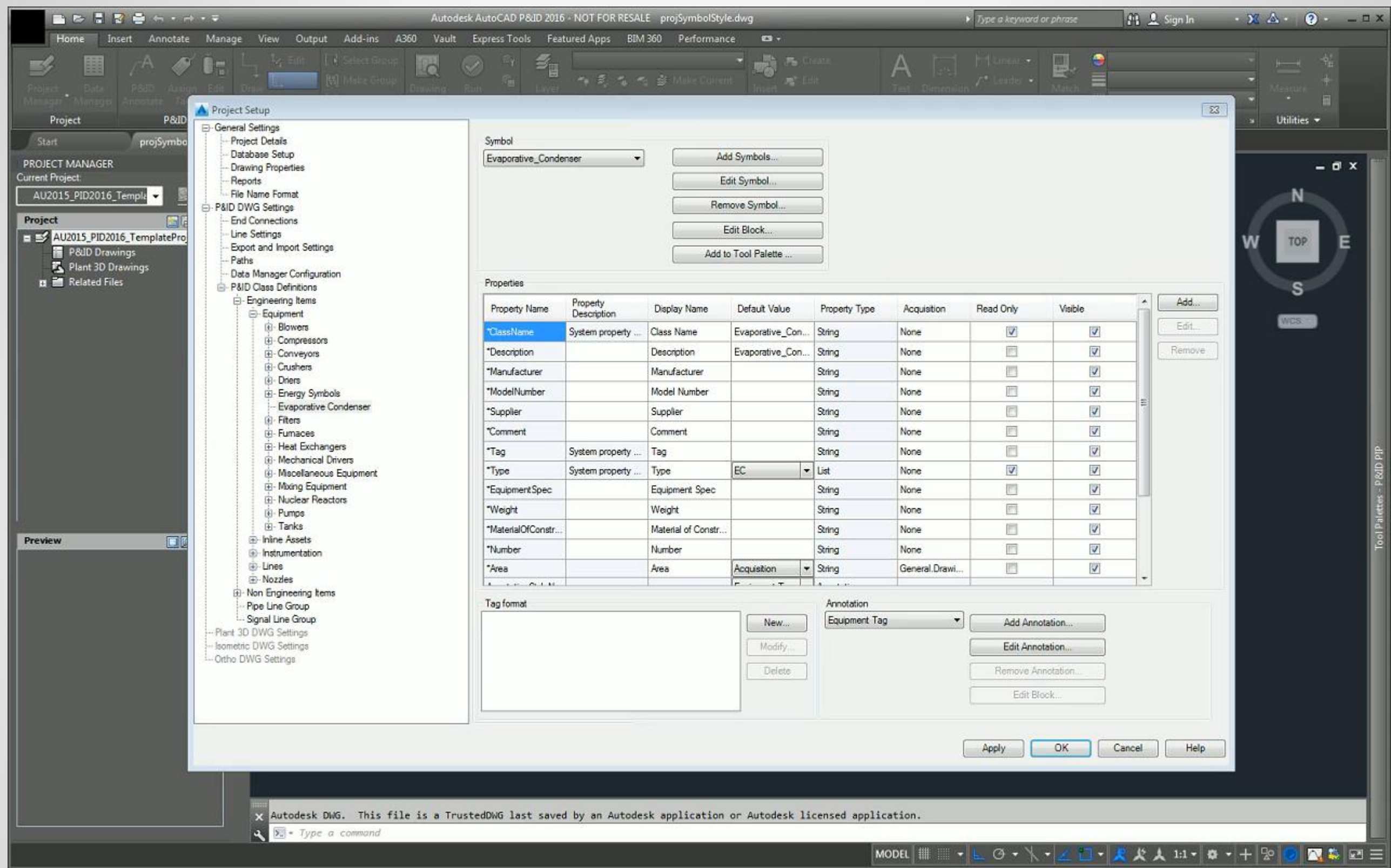
## Equipment – Evaporative Condenser

- Final Housekeeping
- Change Description
- Set AnnotationStyleName to use EC Equipment Tag as default

Properties			
Property Name	Property Description	Display Name	Default Value
*ClassName	System property whi...	Class Name	Evaporative_Condenser
*Description		Description	Evaporative_Condenser
*Manufacturer		Manufacturer	
*ModelNumber		Model Number	

Remove the underscore from Evaporative\_Condenser

*MaterialOfConstruction		Material of Co...		String	None	<input type="checkbox"/>
*Number		Number		String	None	<input type="checkbox"/>
*Area		Area	Acquisition	String	General...	<input type="checkbox"/>
AnnotationStyleName			EC Equipment Tag	Annotation		
Substitution			True	Boolean		
SupportedStandards			3	Bitwise Fl...		



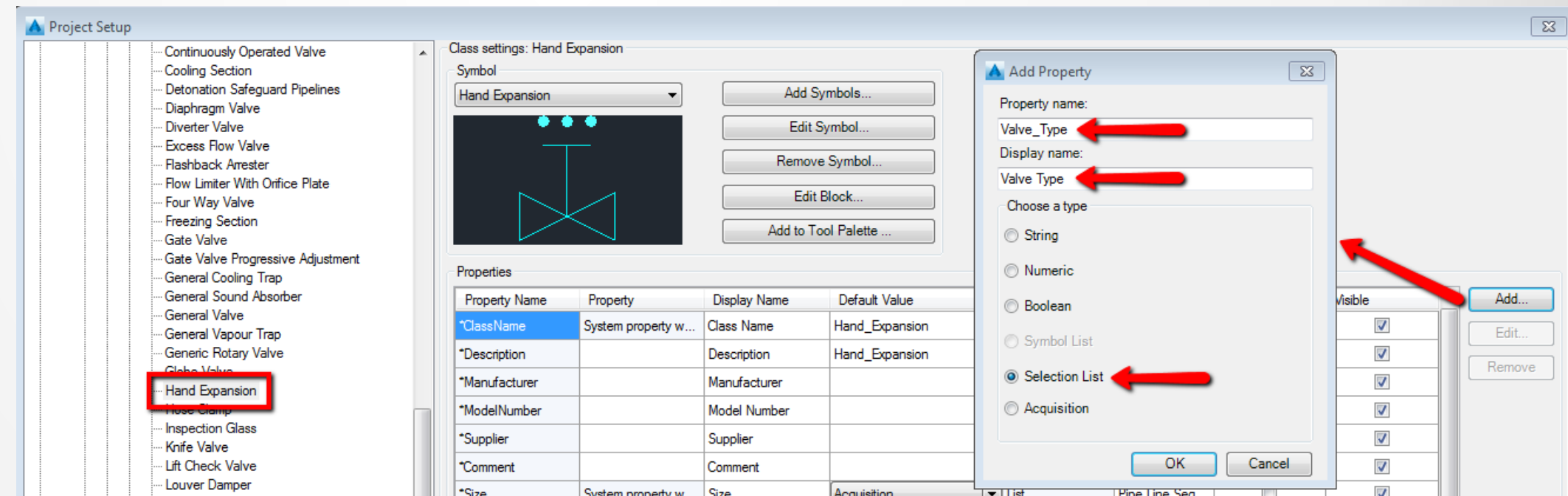
<http://autode.sk/1Nqa9jd>



# Tag format creation to Project Setup

## Hand Valves – Hand Expansion

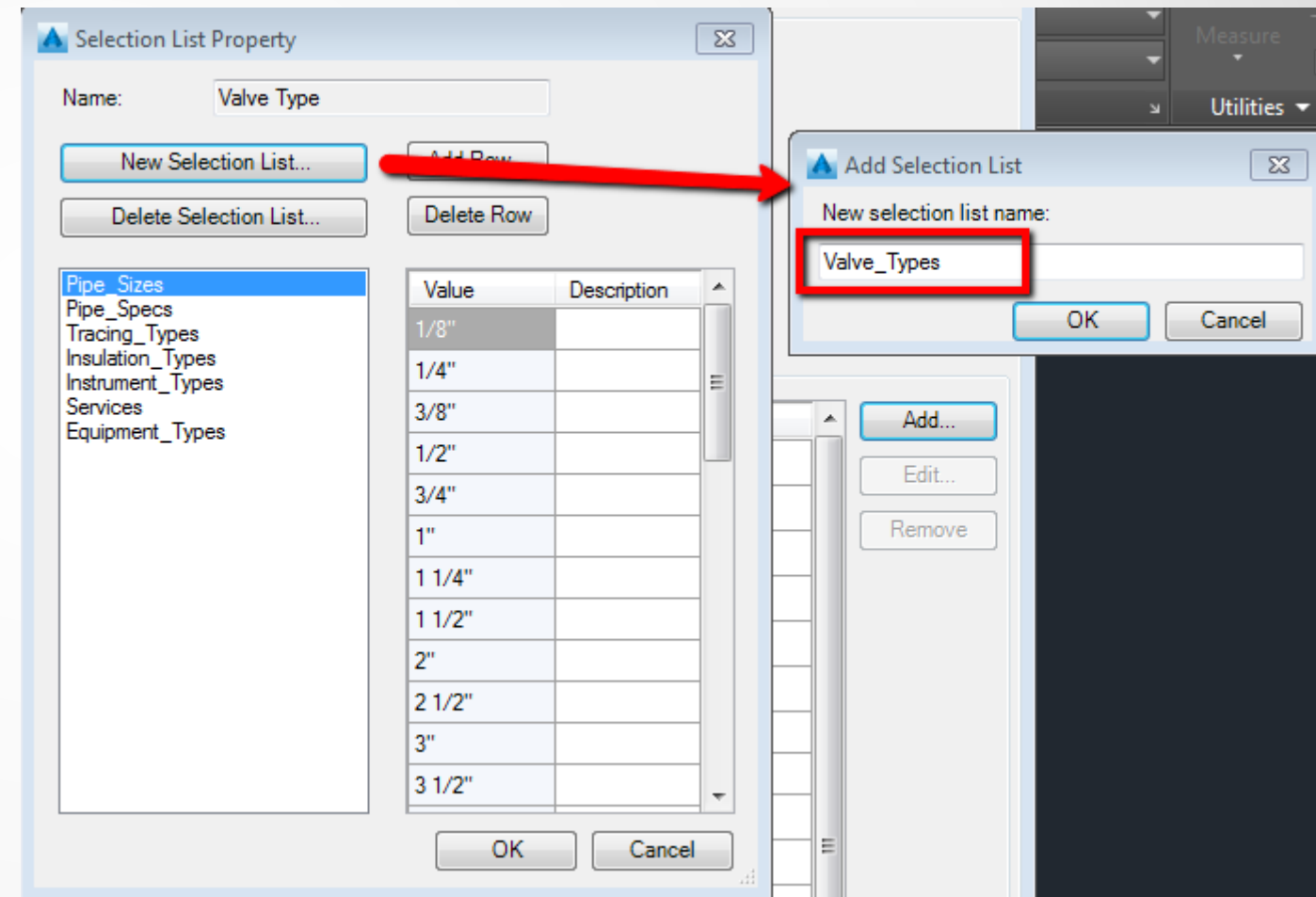
- Access Project Setup
- Navigate to Hand Expansion
- Select Add, to add a new property



# Tag format creation to Project Setup

## Hand Valves – Hand Expansion

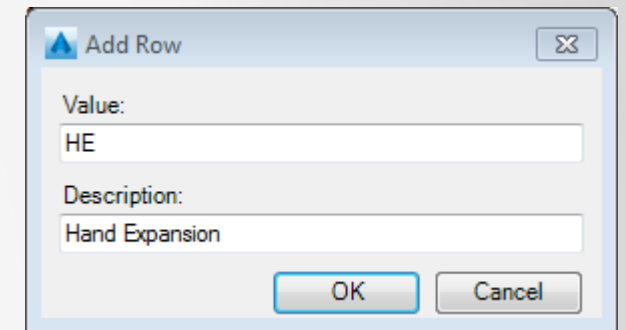
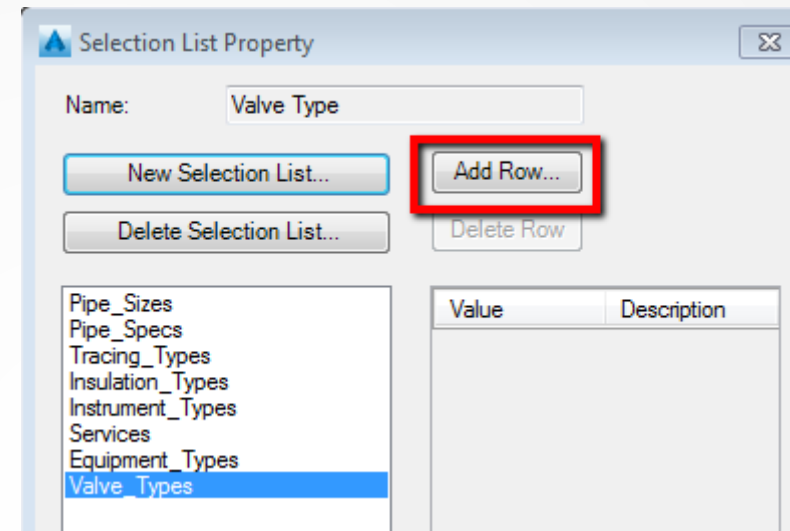
- Add a New Selection List
- Name New Selection List



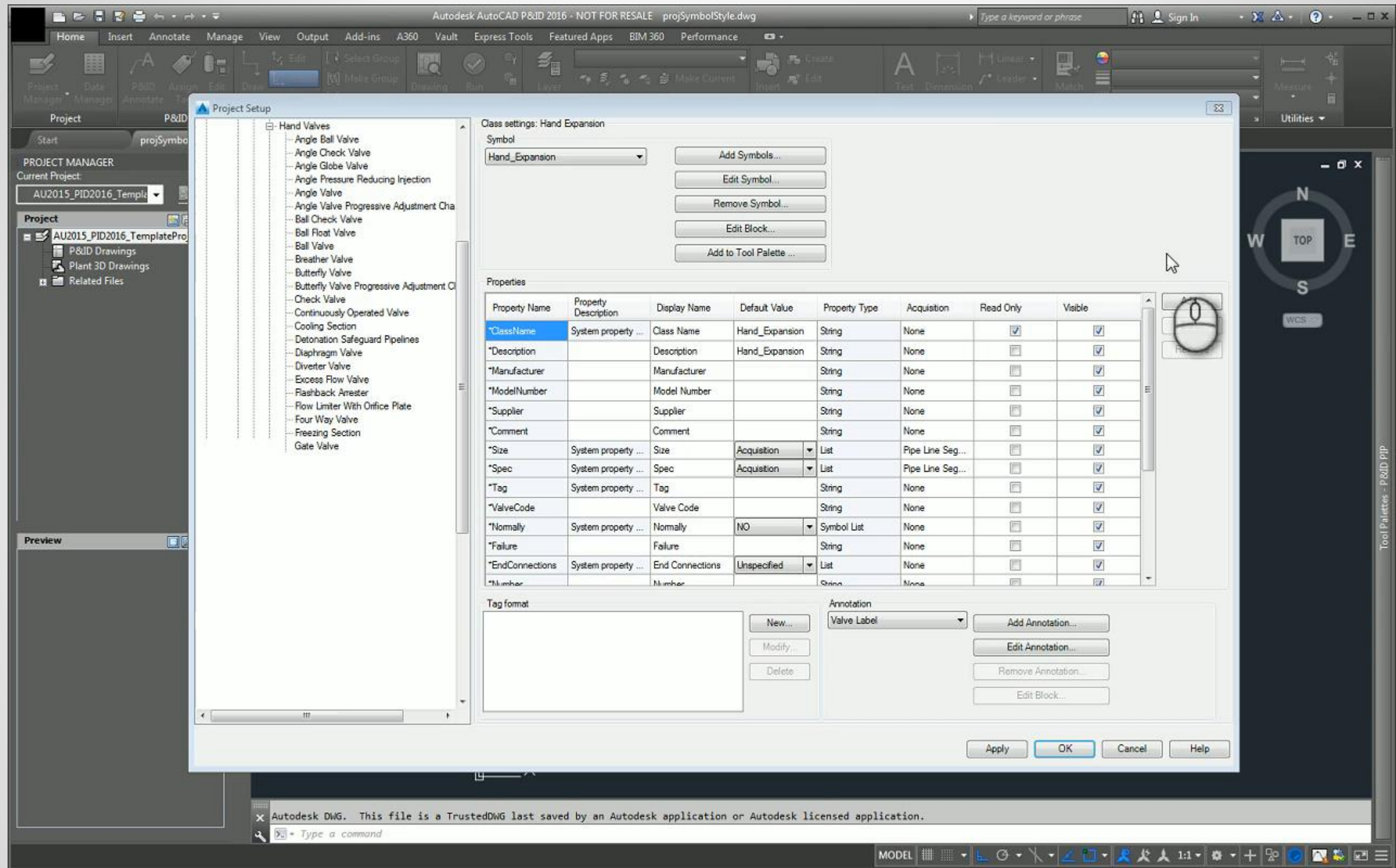
# Tag format creation to Project Setup

## Hand Valves – Hand Expansion

- Add Row
- Add new Values and Descriptions to compile the list
- Set Valve Type HE to default



Valve_Type	Valve Type	HE	List	None
AnnotationStyleVa...	Valve Label		Annotation	
Substitution	True	Boolean		
SupportedStandards	?	Boolean		



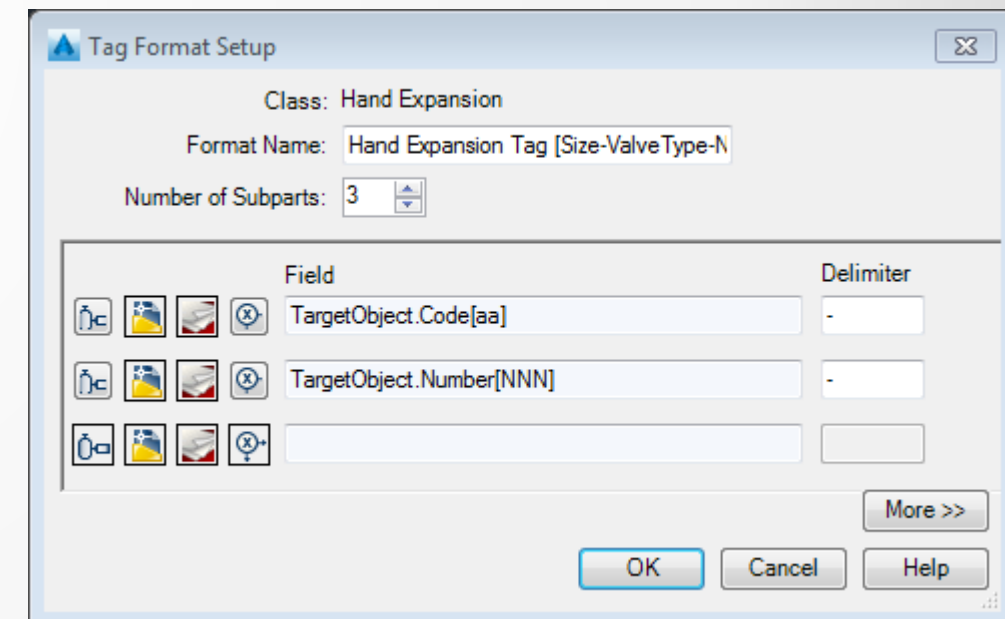
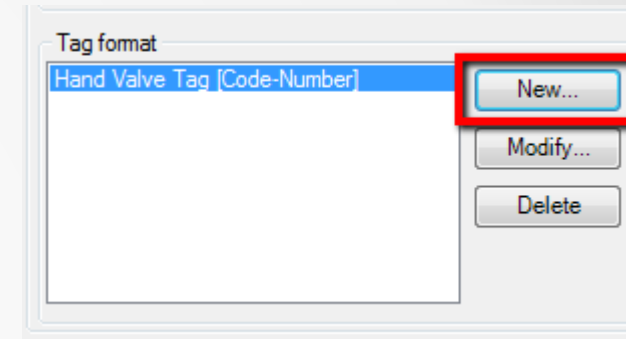
<http://autode.sk/1IE9WmR>



# Tag format creation to Project Setup

## Hand Valves – Hand Expansion

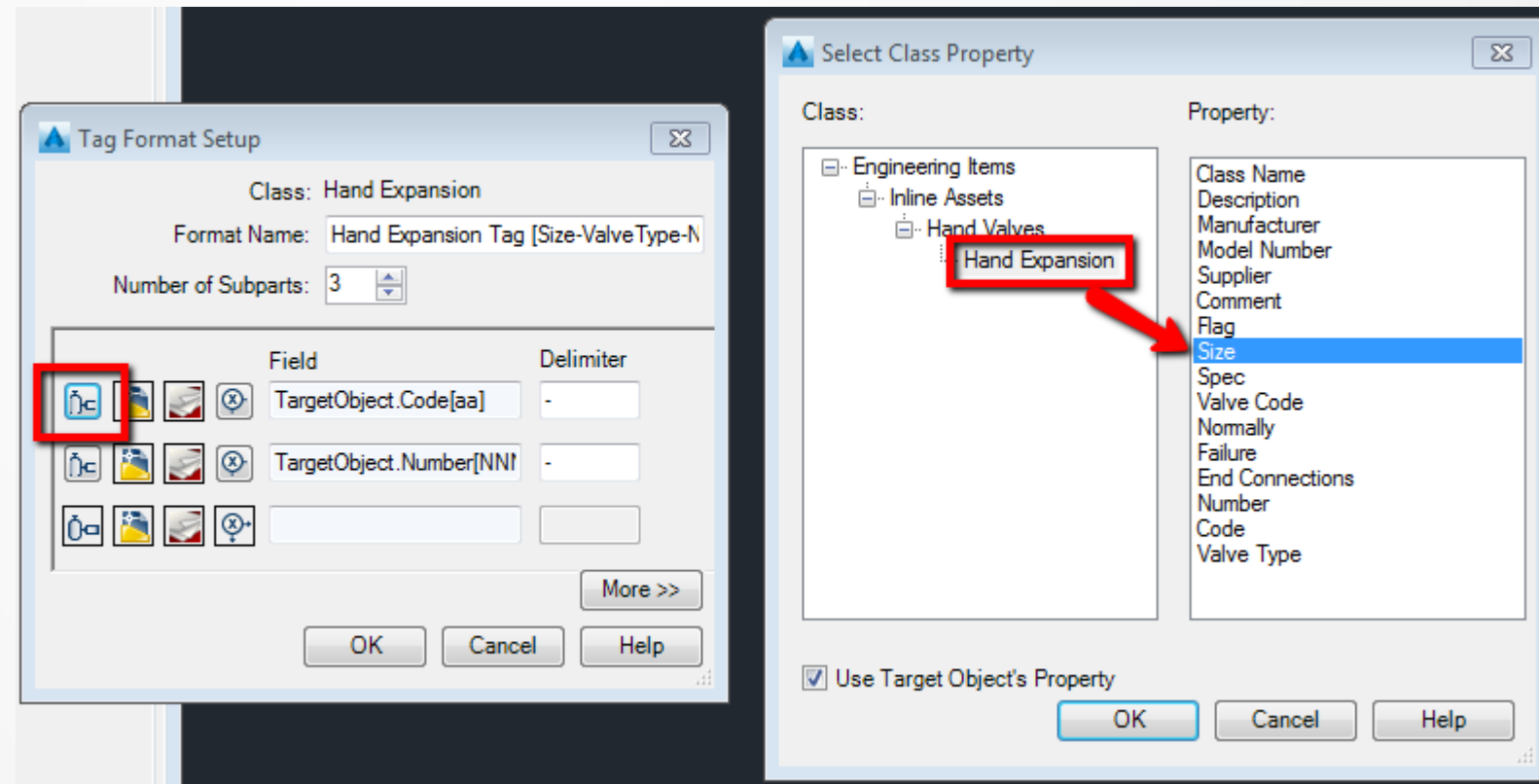
- New Tag Format
- Tag Format Setup
- Create new Format Name
- Adding additional subparts



# Tag format creation to Project Setup

## Hand Valves – Hand Expansion

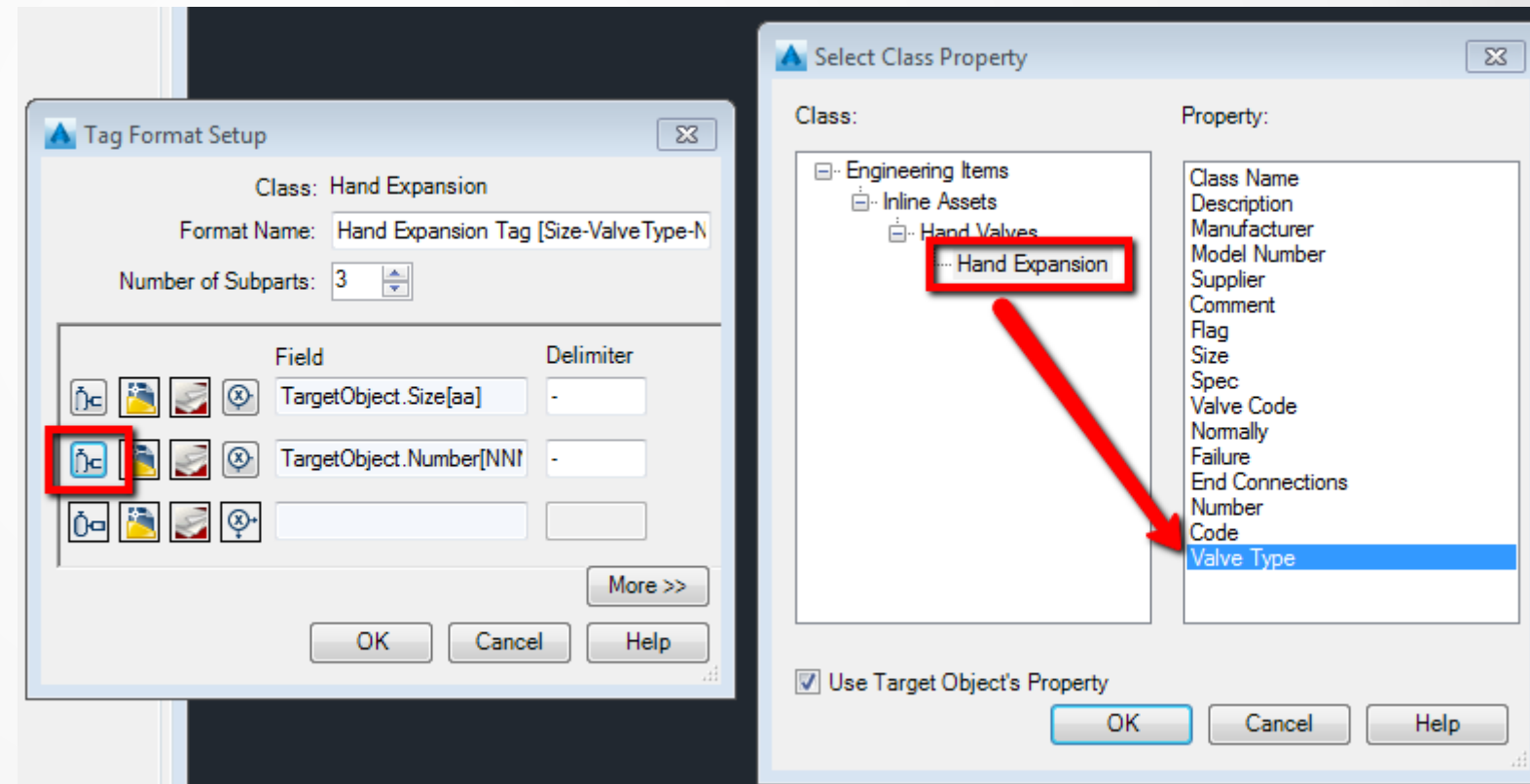
- Assign properties to each subpart - Size



# Tag format creation to Project Setup

## Hand Valves – Hand Expansion

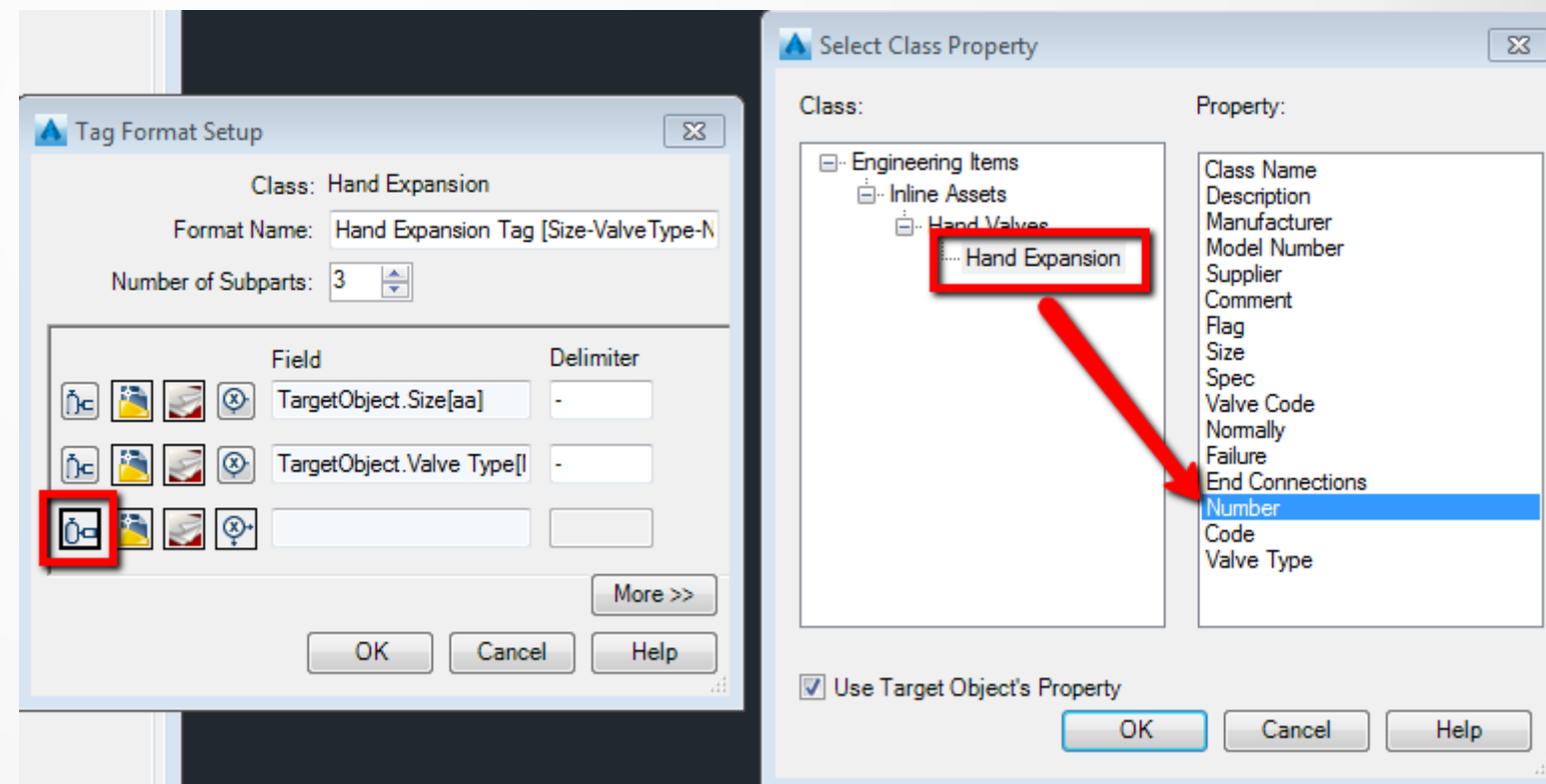
- Assign properties to each subpart – Valve Type



# Tag format creation to Project Setup

## Hand Valves – Hand Expansion

- Assign properties to each subpart – Valve Number

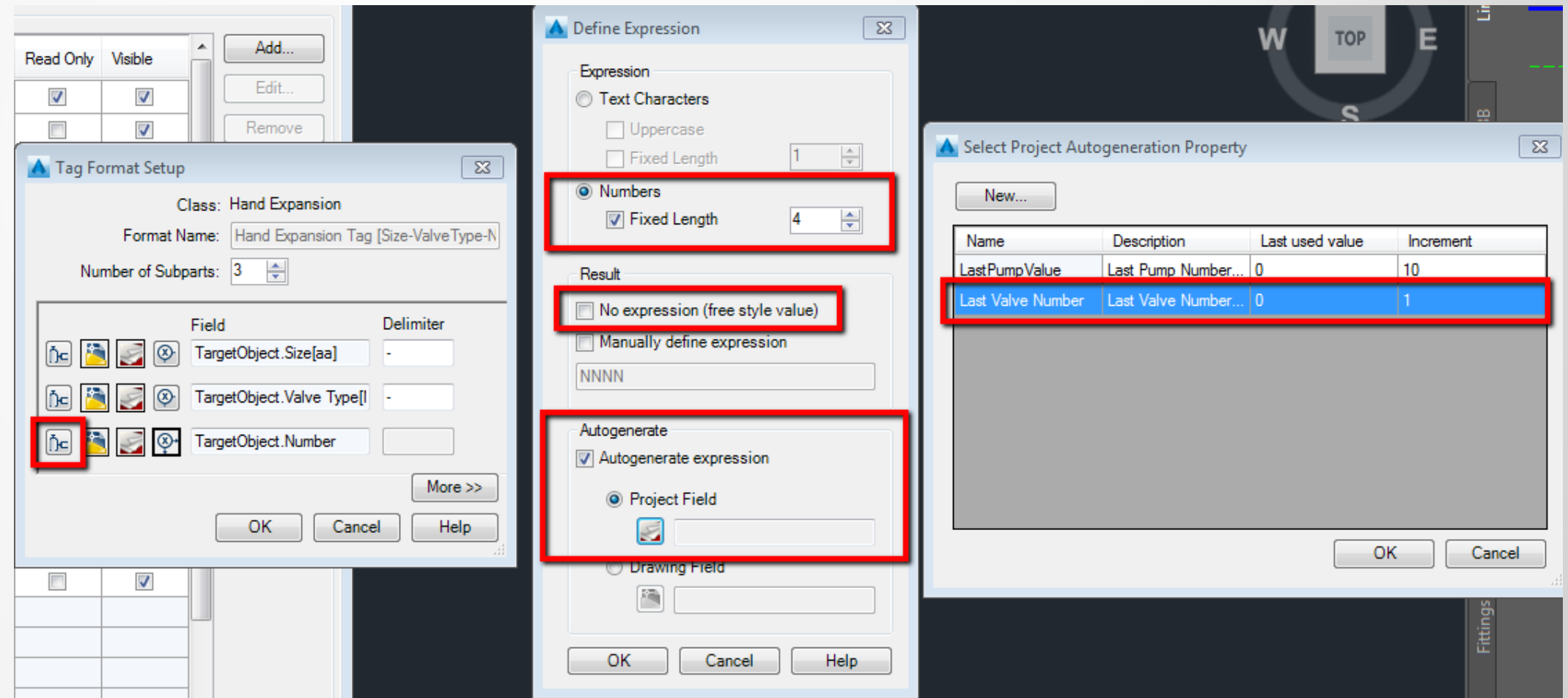




# Tag format creation to Project Setup

## Hand Valves – Hand Expansion

- Assign properties to each subpart – Valve Number



# Tag format creation to Project Setup

## Hand Valves – Hand Expansion

- Final Housekeeping
- Change TagFormatName to use Hand Expansion as default
- Change Annotation Tag to Auto Insert

DisplayName			Hand Expansion	Str
GraphicalStyleName			Hand Expansion	Gr
HandExpansion			False	Bo
TagFormatName			Hand Expansion Tag [Size-Valve Type-Number]	Tag

Annotation  
Tag

Add Annotation...

Edit Annotation...

Remove Annotation...

Edit Block...

#(TargetObject.Tag)

Other Properties

Symbol Scal... 1.0000

Use target p... No

Linked Ver

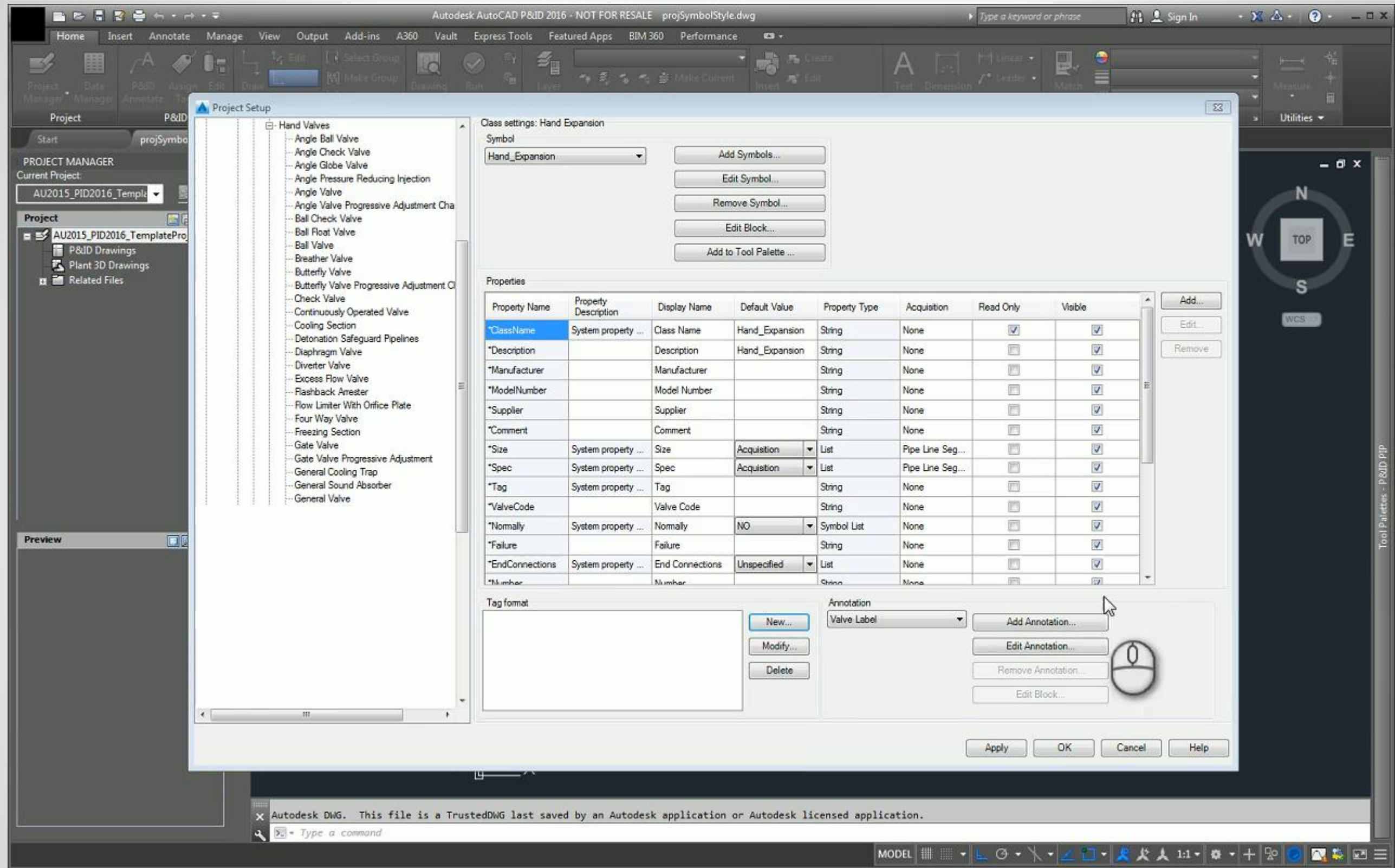
Auto insert? Auto Insert

Offset Y -0.2500

Use leader NO

Orientation Orthogonal

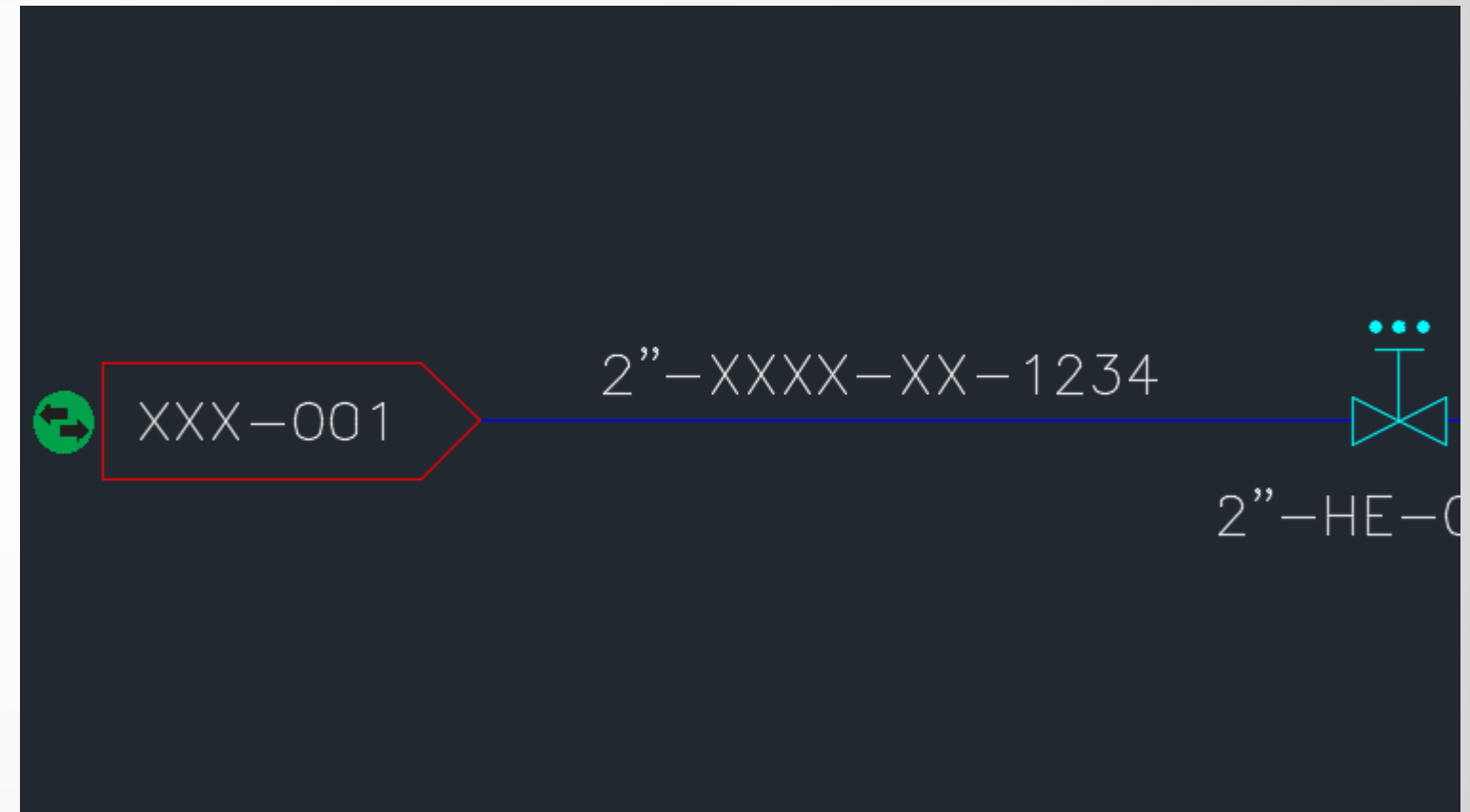
OK Cancel Help



<http://autode.sk/1XGLHva>

# Create Unique Off Page Connectors (OPC's)

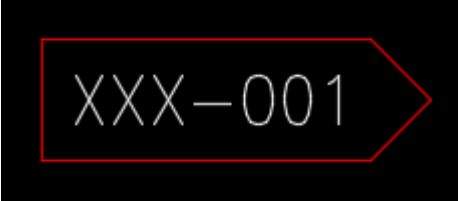
- Creating new OPC's
- Edit existing out of the box OPC's





# Demo Off Page Connect

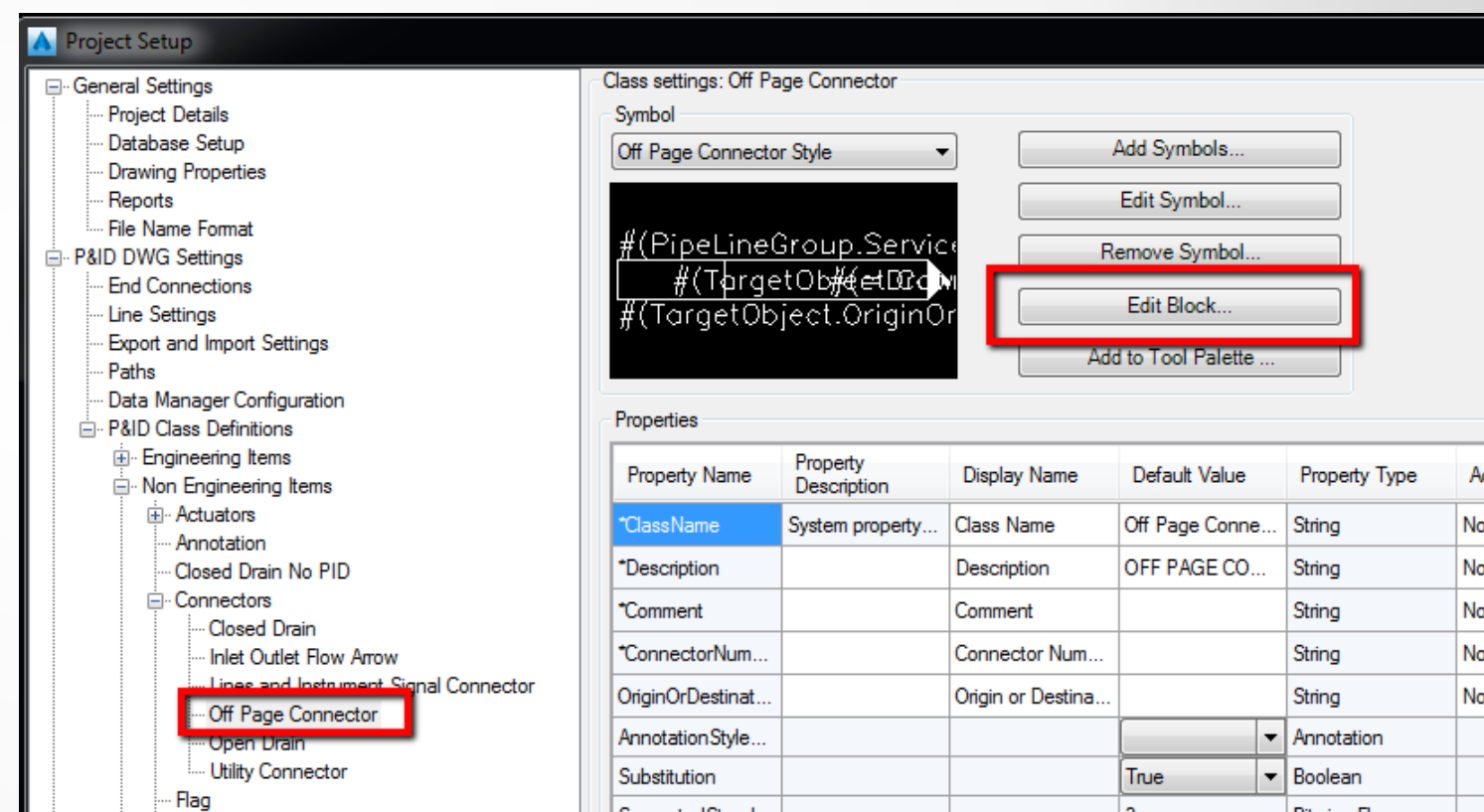
Simplified  
Off Page Connector



XXX-001

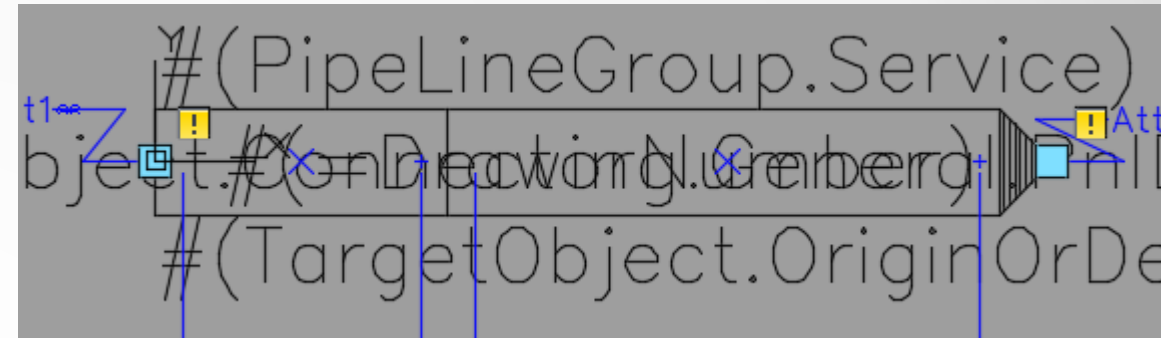
# Create Unique Off Page Connectors (OPC's)

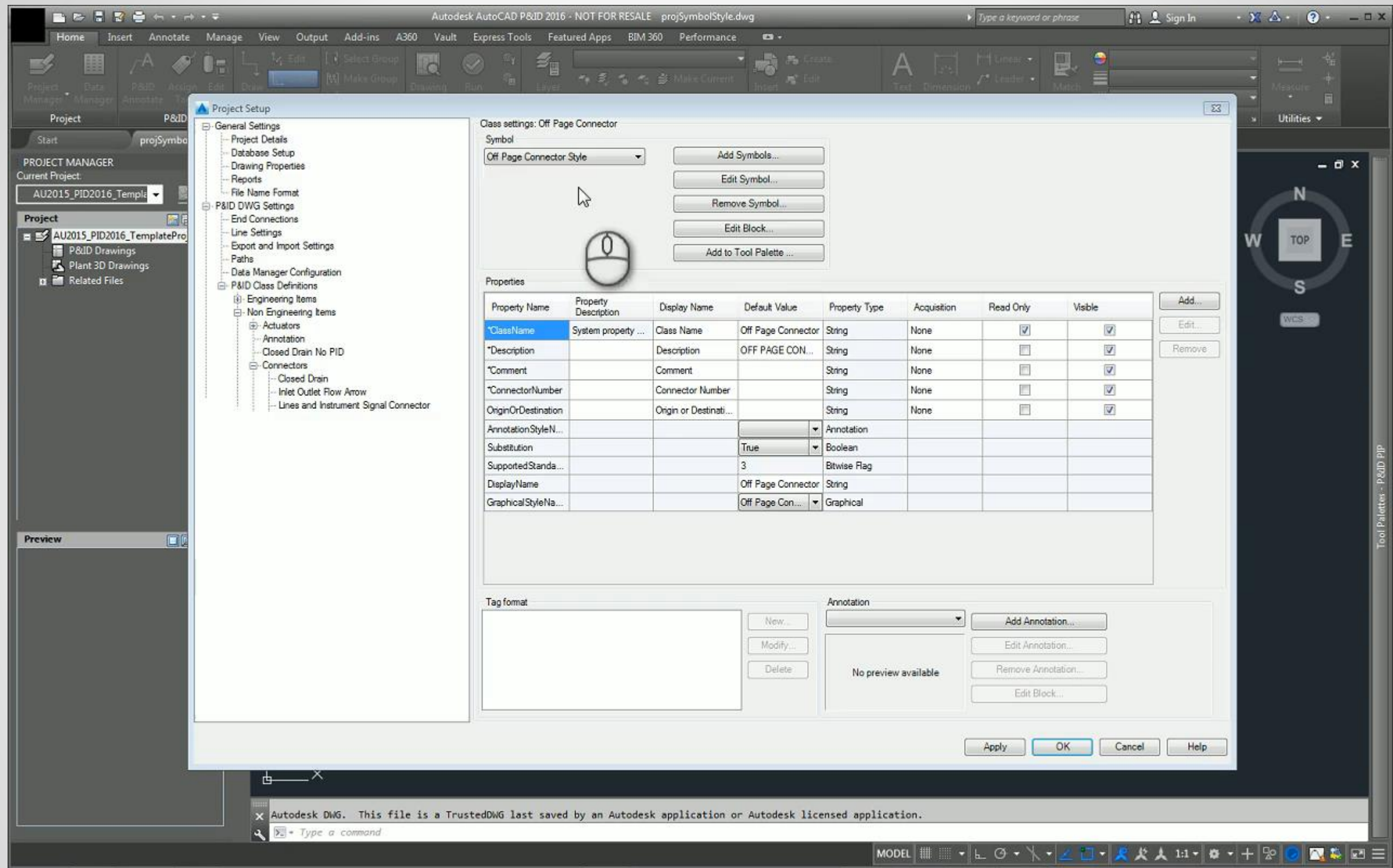
- Navigate to Connectors in Project Setup
- Edit existing out of the box Off Page Connector Style



# Create Unique Off Page Connectors (OPC's)

- Edit existing OPC in Block Editor.
- Remove unwanted items
- Create new connector



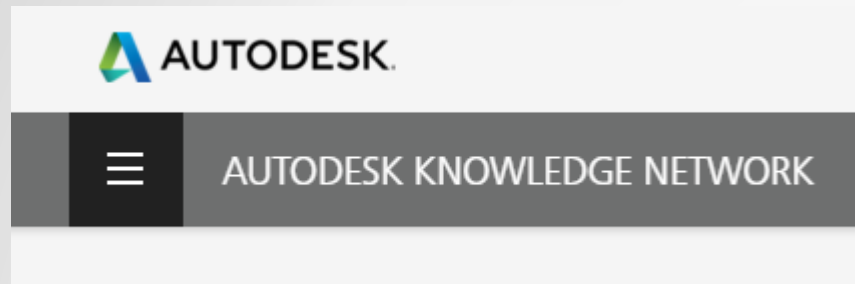


<http://autode.sk/1IEgKB8>



# Test Customization

# Where to reach out for more help?



Autodesk Knowledge Network – P&ID

<https://knowledge.autodesk.com/support/>

In the Pipes

[http://in-the-pipes.typepad.com/in\\_the\\_pipes/](http://in-the-pipes.typepad.com/in_the_pipes/)



# Be heard! Provide AU session feedback.

- Via the Survey Stations, email or mobile device.
- AU 2016 passes awarded daily!
- Give your feedback after each session.
- Give instructors feedback in real-time.



# Too many sessions, too little time?

After AU visit:

**[AutodeskUniversity.com](http://AutodeskUniversity.com)**

- Recorded sessions
- Presentations and handouts
- Key learnings

Don't miss a second! Find hundreds of sessions waiting for you.





# Thank you!



## Contact Info:

Quentin Contreras

[quentin.contreras@autodesk.com](mailto:quentin.contreras@autodesk.com)

# Q&A



