THE SHAPE OF *POTENTIAL*

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CALGARY, AB
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90 CADWorx Tips in 90 Minutes

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Objectives:

Share 90 of my favorite tips and techniques that have increased my productivity and efficiencies during my years of design using CADWorx

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Hardware

1) SSD Hard drives
2) Max your RAM to your budget/computer
3) Dual MONITORS or more
4) Autodesk Certified Graphics Card & computer manufactures latest driver
   - www.**autodesk**.com/graphics-**hardware**

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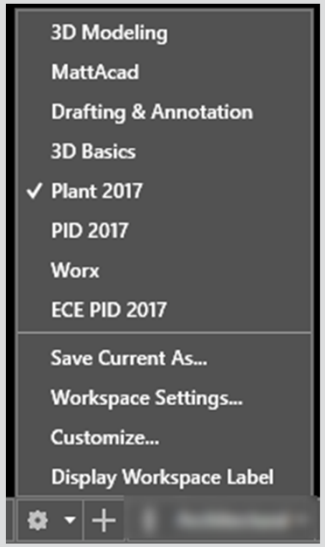
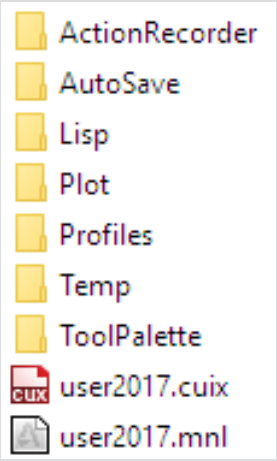
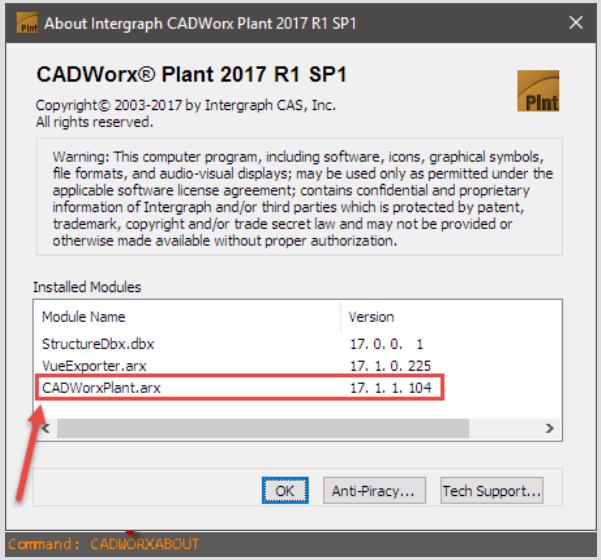
Project Setup – AutoCAD

5) Create your own workspace
6) Create and use a custom CUIX file
7) Export your CADWorx Profiles regularly
8) Run the latest version when starting a new project







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Project Setup – Project Centric Files

9) Setup your piping rules
10) Project Standard Config files
11) Client Specific Specification files
12) Create Assemblies
13) Project Standard Equipment Data files
14) Project Standard Insulation Files
15) Create ISOGEN styles for different needs

Piping Rules		Include in CFG
Apply Size Rule	Automatic	☑
Apply Specification Rule	Automatic	☑
Apply End Type Rule	Automatic	☐
Apply Pipe Length Rule	No	☑
Apply Weld Insertion Rule	Automatic - Buttweld Only	☐
Apply Gasket Insertion Rule	Automatic	☐
Apply Bolt Insertion Rule	Automatic	☐
Apply Trimmed Elbow Rule	No	☑
Apply Pipe Healing Rule	Automatic	☑
Apply Branch Table Rule	Automatic	☐
Apply Flange Insertion Rule	Automatic - Use Spec Setting	☐
Apply Bolt Hole Orientation Rule	Automatic - 2 Holes	☑
Apply Pipe End Prep Rule	Automatic	☐
Apply Auto Coupling Rule	No	☑
Apply Line Number Rule	Always Inherit	☑
Apply Change Data Rule	Tag, ...	☑
Apply O-Let Minimum Spacing Rule	3	☑
Center Line	On	☑
Apply Skew Pipe Maximum Angle	15.0000	☑
Variable Component Length Assign	Show Options	☑
Incompatible Component Actions	Update Compatible Components	☐

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Project Setup – File Tips

16) Always start with a CADWorx template - Don’t copy old files
17) Design near 0,0,0

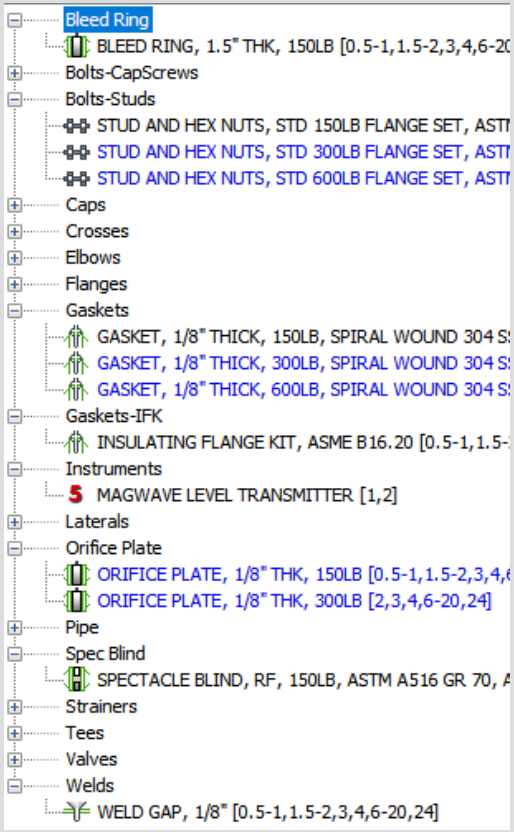
CADWorx Error Number 2012

CADWorx coordinate limits are as follows:
In imperial coordinates (English / Inch Mode), the limit is approximately:
-9000000 inches to 99000000 inches
-750000 feet to 8250000 feet
-140 miles to 1500 miles
In metric coordinates (Metric / Metric Mode), the limit is approximately:
-9000000 millimeters to 99000000 millimeters
-9000 meters to 99000 meters
-9 kilometers to 99 kilometers

18) Use AutoCAD north as plant/world north

Specifications – Catalog Tips

19) Don’t modify OOTB files - Create copies of modified files (CATS, PRJs, Blocks, Templates…)
20) Create missing components with OOTB component types Orifice Plates
21) Organize your components into Groups
22) Create usershapes for everything else - Detailed Filters
23) Set default Flanges Bolts and Gaskets in your catalog



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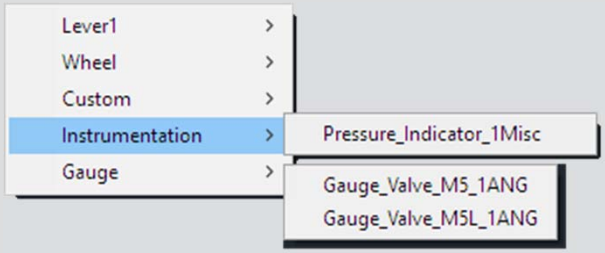
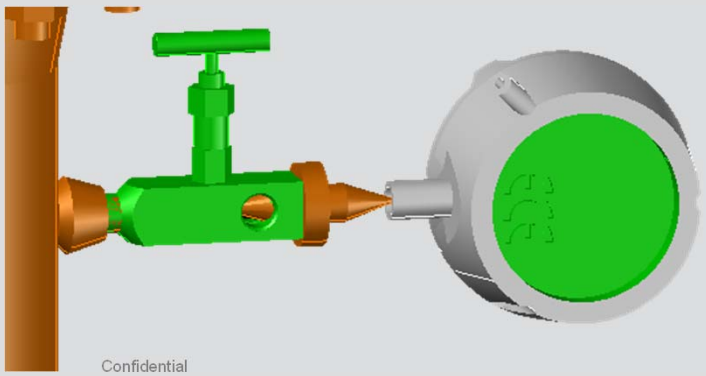
Specifications – Catalog Tips



24) Use Topworks
25) Use Custom Topworks Groups
26) Use Enhanced View Clamps - COMPONENTDWGBLOCKEDIT
27) Use optimized vendor drawings when possible - Topworks, Usershapes and Equipment



CPL_SW_3000*

MAINSIZE	LEN	HUBOD	WEIGHT	ETS	SUBDIRECTORY	DWGNAME	ROTATION_X_AXIS
0.1250	1.0000	0.8750	0.0900	3	C:\CADWorx 2017\Plant\Specs\CustomOverlays	CustomClamp_00125.dwg	0
0.2500	1.0000	0.8750	0.1100	3	C:\CADWorx 2017\Plant\Specs\CustomOverlays	CustomClamp_00250.dwg	0
0.3750	1.0000	1.0000	0.1600	3	C:\CADWorx 2017\Plant\Specs\CustomOverlays	CustomClamp_00375.dwg	0
0.5000	1.1250	1.3125	0.2900	3	C:\CADWorx 2017\Plant\Specs\CustomOverlays	CustomClamp_00500.dwg	0
0.7500	1.3750	1.5000	0.4200	3	C:\CADWorx 2017\Plant\Specs\CustomOverlays	CustomClamp_00750.dwg	0
1.0000	1.5000	1.8125	0.5900	3	C:\CADWorx 2017\Plant\Specs\CustomOverlays	CustomClamp_01000.dwg	0

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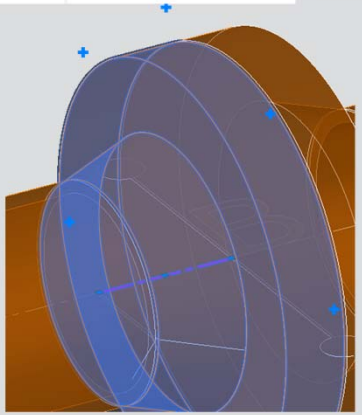
Specifications – Catalog Data Tables

28) Use Orifice taps on the flange data tables

OTD	Orifice Tab Diameter
OTA	Orifice Tab Angle
OTN	Orifice Tab Number

OTD	OTA	OTN
0.5000	45.00	8



29) Use Excel like formulas in the spec editor

=MAINSIZE*1.5

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Specifications – PRJ Tips

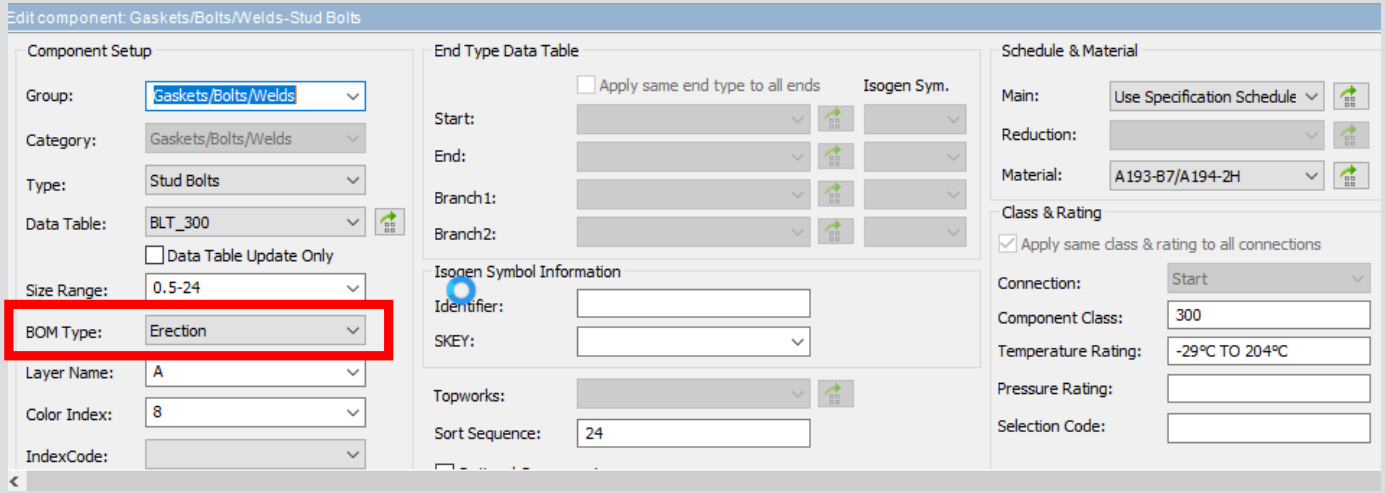
30) Create unique data tables for easier LD
31) Use custom colors for non engineered and specialty items
32) Use long description formats

    =DESC_CMP_TBL, MAINSCH_SCH_TBL, SPEC_MAT_TBL GRADE_MAT_TBL, STANDARD_CMP_TBL

33) Use Schedule Assignment Tables & Use Material Assignment Tables
34) Use custom data in your PRJ to track status data in your model
35) Export your specs for checking

Specifications – PRJ Tips

36) Use the Fabrication / Erection / Offshore designators in the spec



37) Use the import / export function of the LD and Materials assignment

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Line Numbering

38) Use line numbers in static mode
39) Use line numbers from your PID database.
40) Use line view palette
41) Create line view filters
    - Issue Stages
    - Stress Stages
    - Services
    - Specs

Line Routing

42) Use Routing Command

Pick end point or [component List/Slope/sKew/Elevation/Plane /Reference/Fitting mode/elBow type/Undo/Connect/Toggle length/Alignment]:

43) Use Connect option in pipe routing

44) Use BOP Alignment option to route pipe on top of pipe supports

Specify start point or [**A**lignment/**R**eference] <last point>:

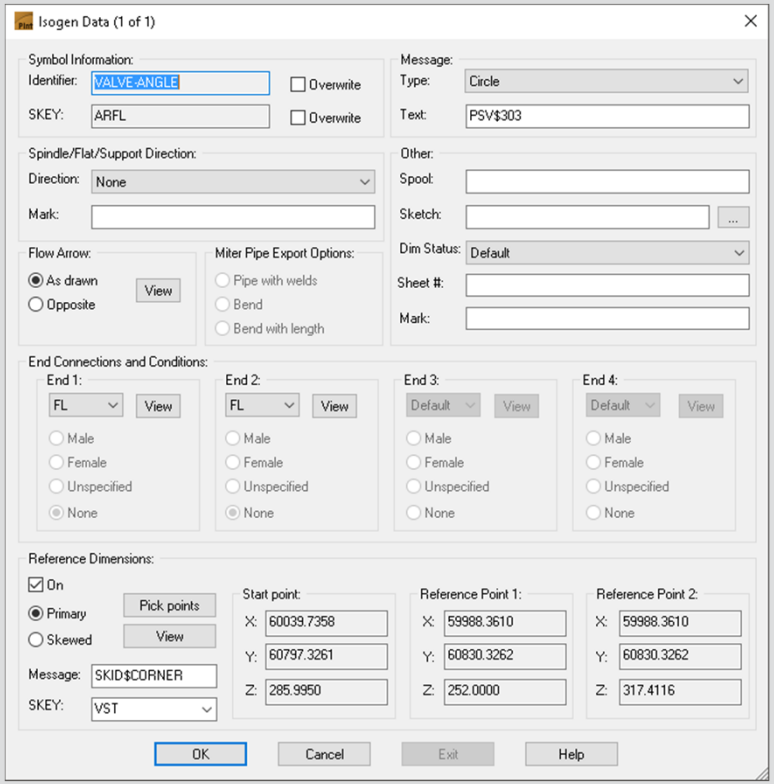
45) Use the Elevation option when routing pipe to drop an elbow down

46) Swap a support using the Design Grip

47) Slope Smartly!

Creating Isos

48) Place all data into model for no touch ISOs
49) ISOGEN Data - Use the ICEDIT command
50) Isogen Start and Stop signs
51) Use Discontinuity Palette



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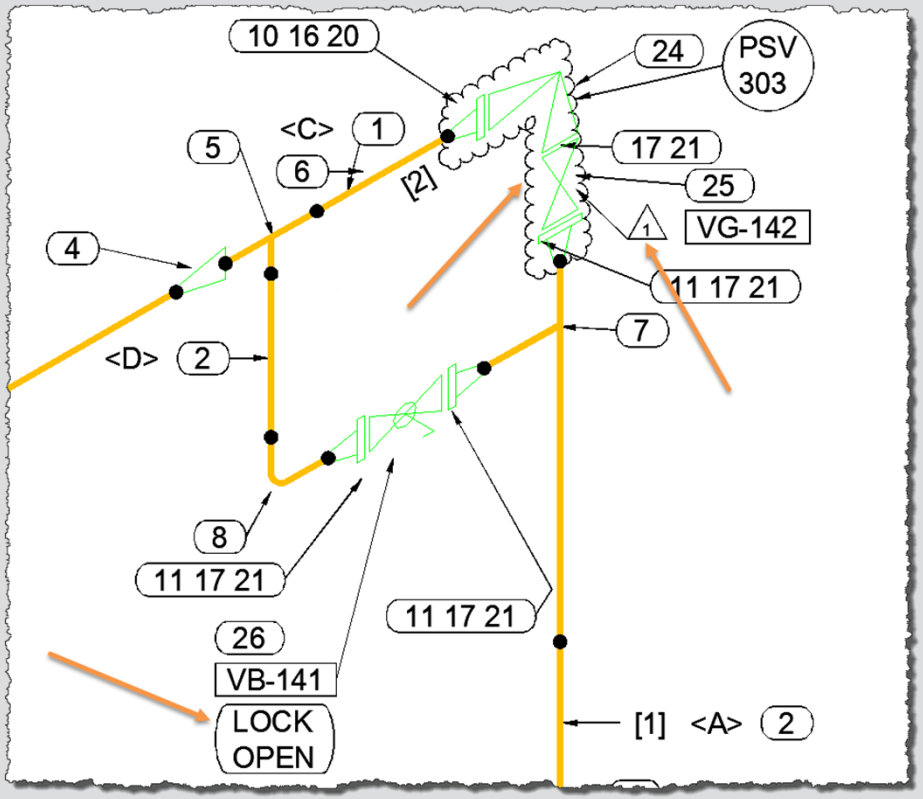
Creating Isos

52) Use custom data to label items in Isos
    - MESSAGE-ROUND COMPONENT-ATTRIBUTE30
        - MESSAGE-CIRCLE
        - MESSAGE-DIAMOND
        - MESSAGE-POINTED
        - MESSAGE-ROUND
        - MESSAGE-SQUARE
        - MESSAGE-TRIANGLE
        - MESSAGE-UNBOXED
53) Use Pipeline Attributes to automate DWG Attributes
54) Automatically add Revision Clouds in IConfigure



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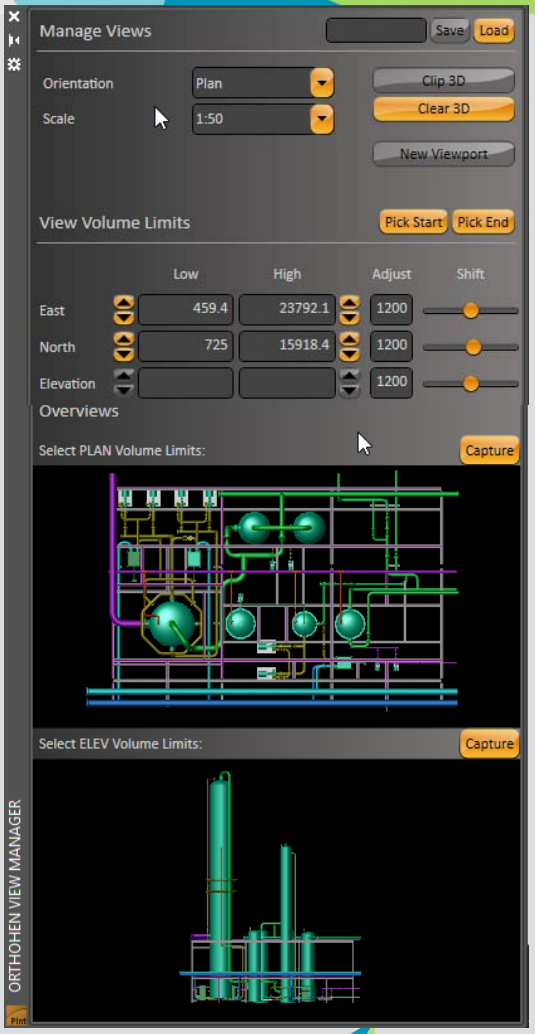
Viewbox

55) Look at the additional tools available such as Orthogen



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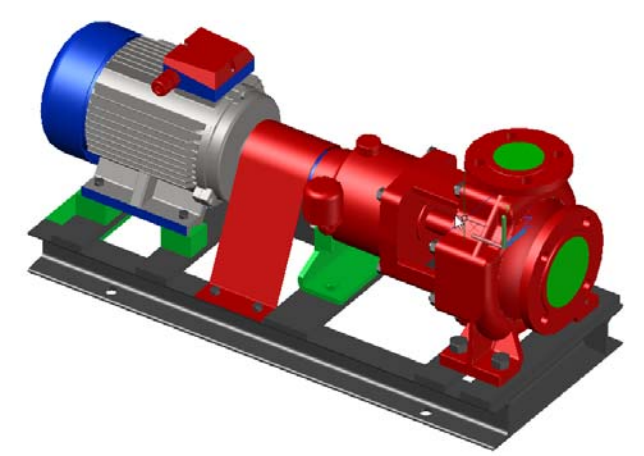
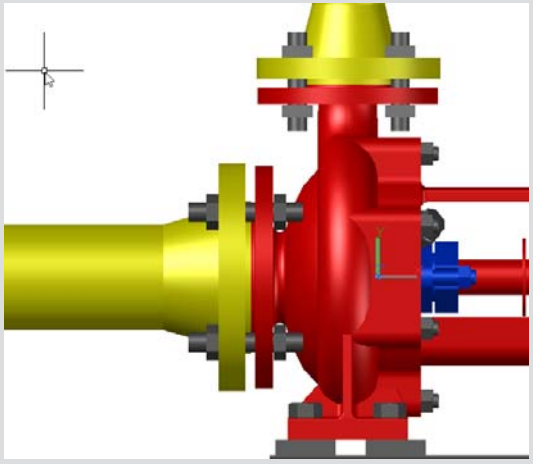
Equipment

56) Use vendor models if you can find them
57) Don't use AutoCAD commands on equipment
58) Use generic nozzle attach





Equipment Name:

P-101A

Placement | Components

Impeller	
Description	
Width	6.000000
Diameter	29.000000
Extension diameter	6.000000
Extension length	6.000000
Flip orientation	No
Pump base	
Pump nozzle [SUCTION]	
Description	SUCTION
Distance	0.000000
Nozzle details	6" - 300 - LWN
Layout angle	0.00
Length	3.750000
Suction side	Yes
Pump nozzle [DISCHARGE]	
Shaft	
Coupling	
Motor	

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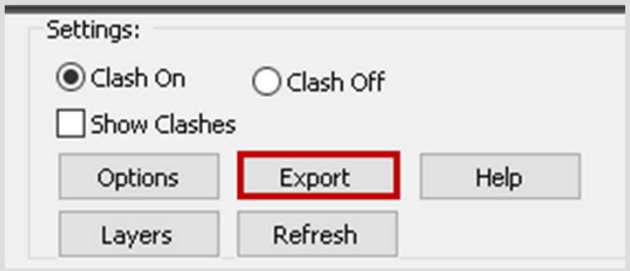
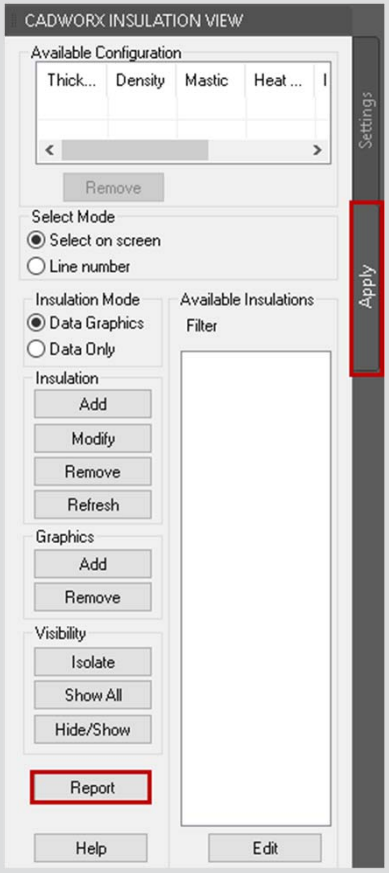
Reports

58) Gather your data in reports

- Pipe BOM
- Pipe Supports BOM
- Steel BOM
- HVAC BOM
- Insulation Reports
- Center of Gravity Reports
- Weld Total Reports
- Clash Detection Report
- Discontinuity Report





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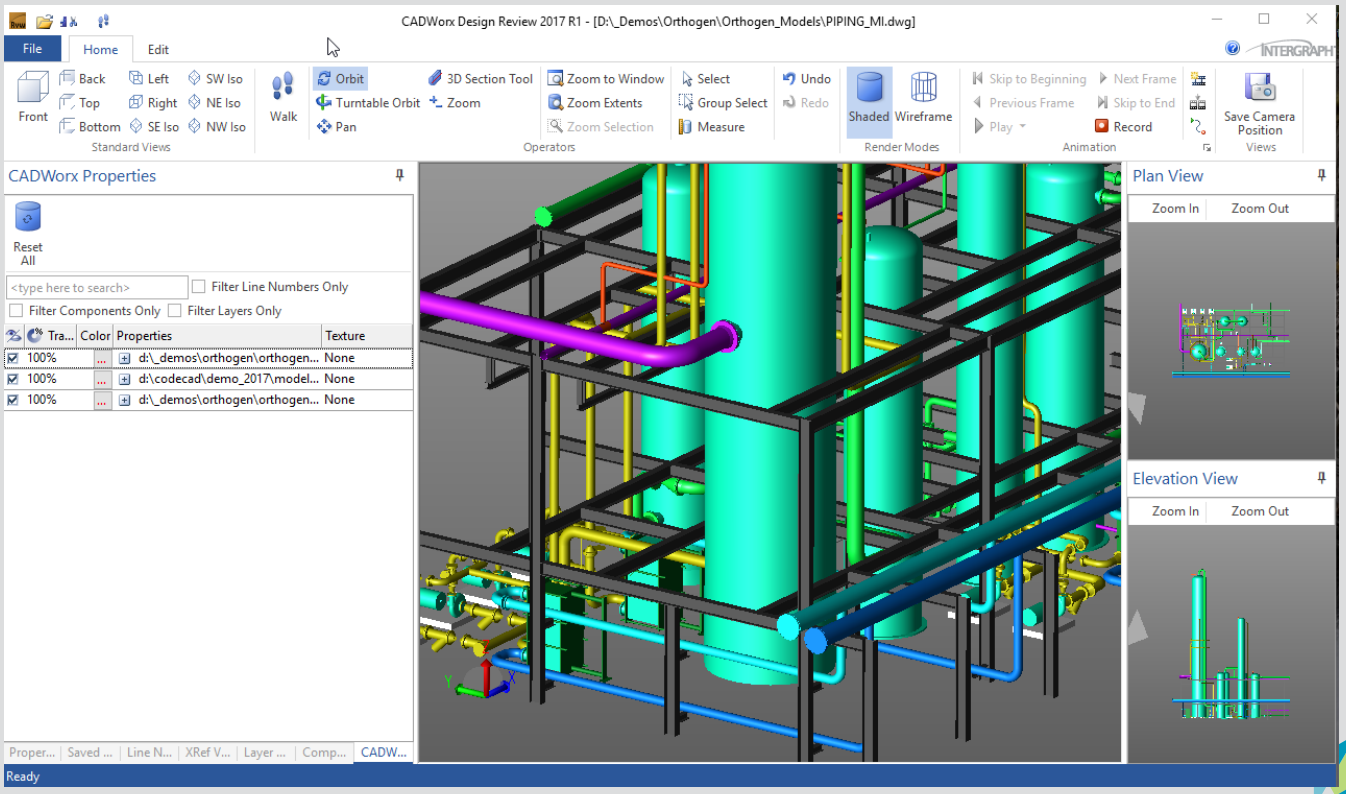
CADWorx Design Review

59) Look again at Design Review



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Xrefs

60) Never rename Xrefs
61) Never modify CADWorx models using REFEDIT, Use XOPEN
62) Xref Working Models as Overlays
63) Xref Overall Models as Attachments
64) Use Xrefs to lock your issued lines

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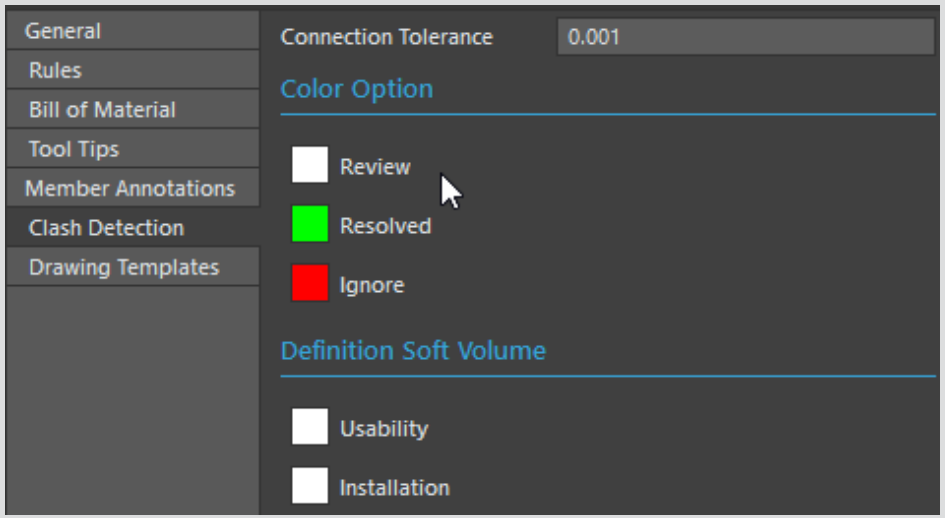
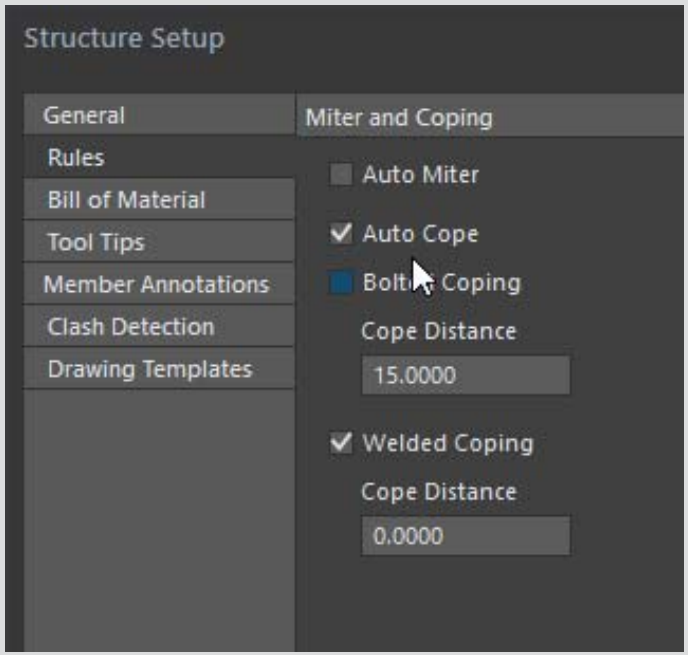
CADWorx Structure Tips

65) Make sure you set up the rules to work for you

66) Use a common config file for everything

67) Take advantage of the new clash detection





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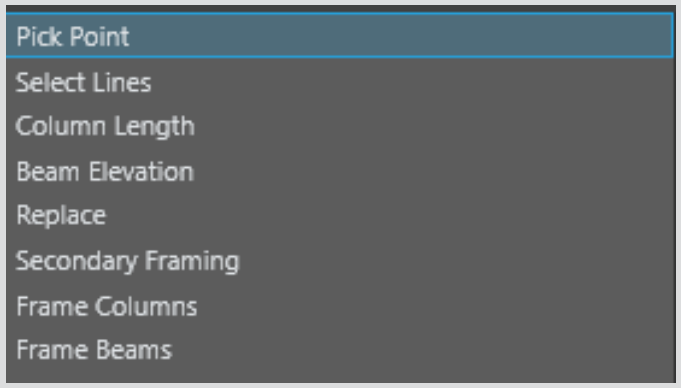
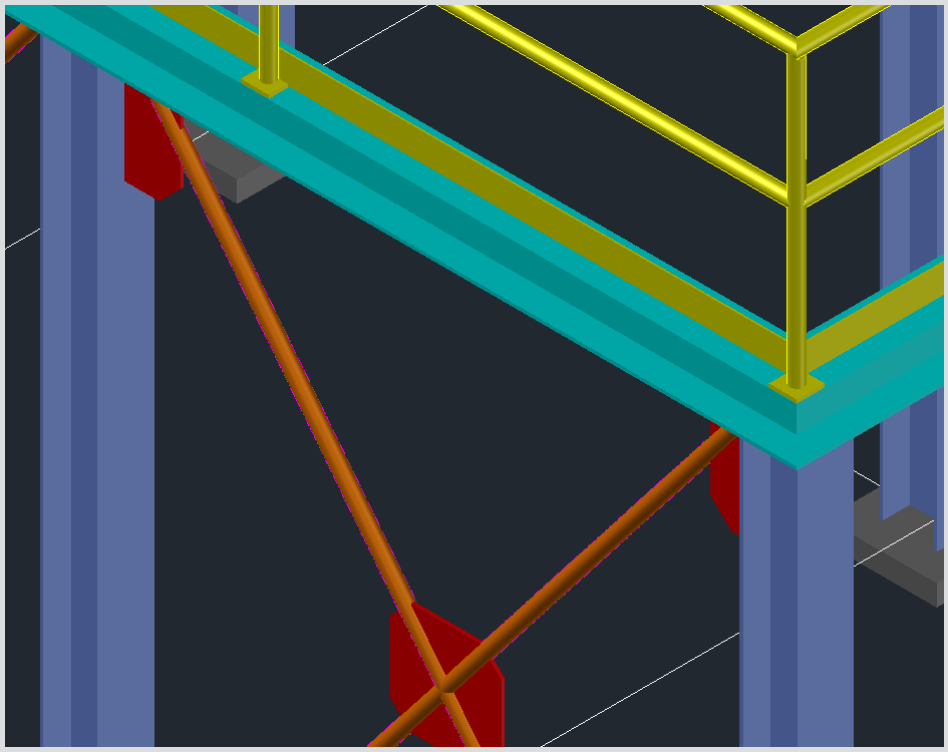
Structure Tips

68) Create your assembly templates

69) Explore the new member placement methods

70) Make sure you are using the group assignment





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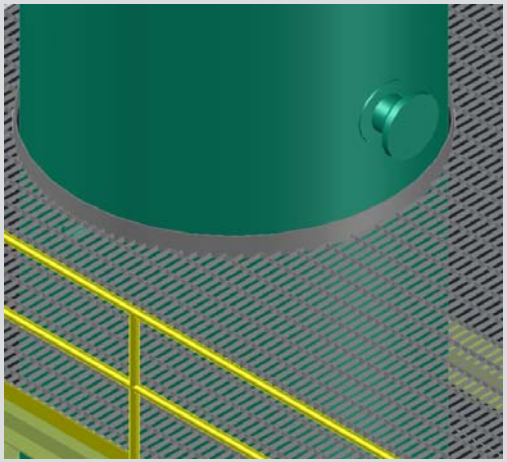
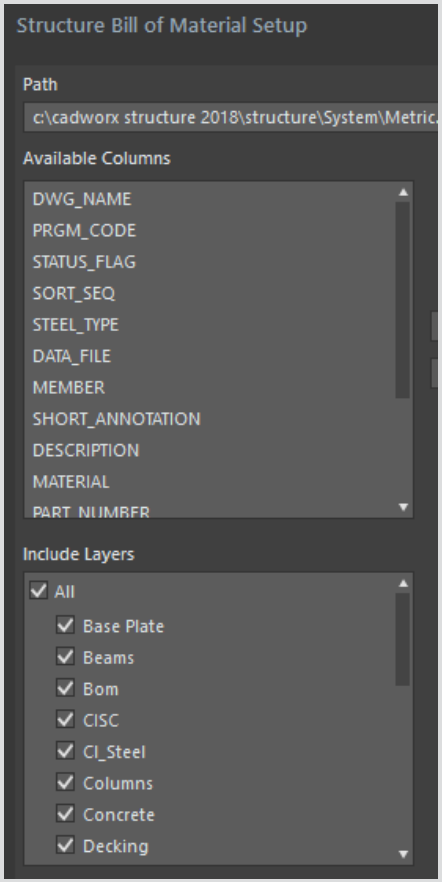
Structural Tips

71) Custom BOM by groups

72) Let the software do the work for holes for equipment and piping

73) Use the Grids





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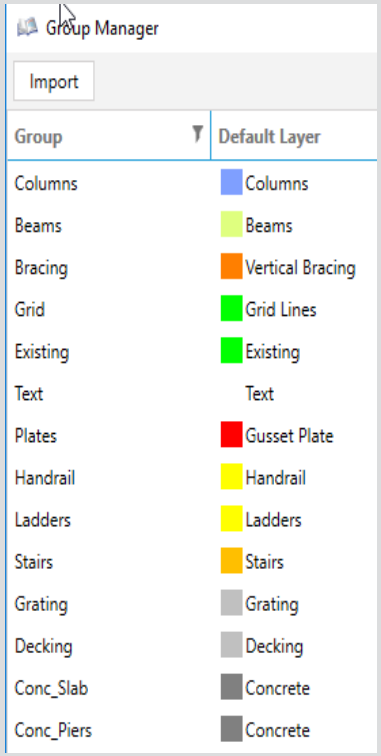
Structural Prj and CAT tips

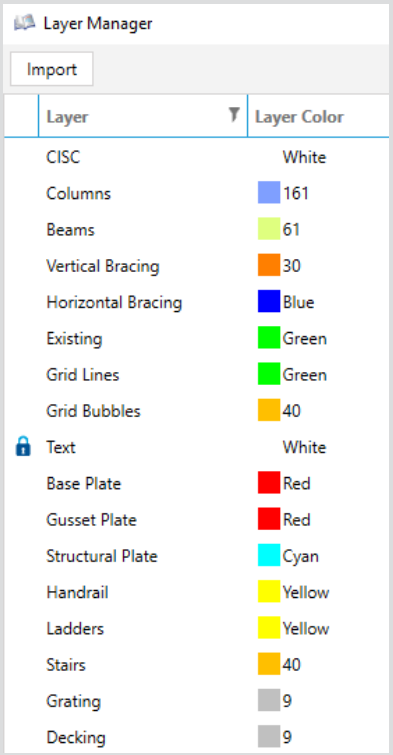
74) Out of the box is very good, contains all standard shapes and sizes

75) Set up your groups and layers how YOU want

76) Build your structural spec the same as you do your piping specs.

77) Use the spec to filter out the sizes you don't use, don't delete from the catalog.





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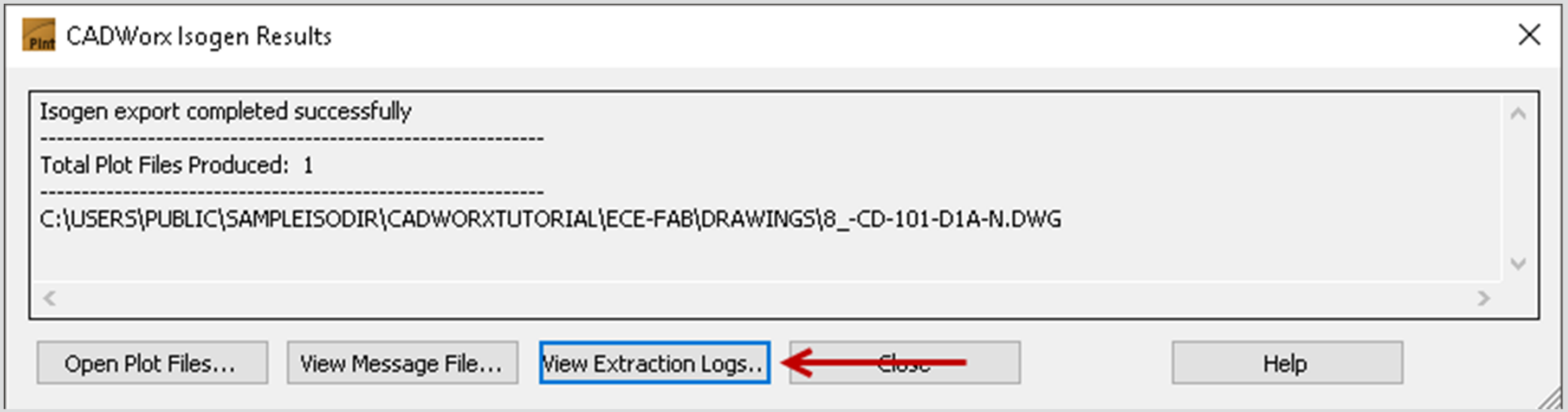
Troubleshooting

78) Use vanilla AutoCAD to recover the files.
79) Recover models using the database
80) Vars2scr to compare variables to another drawing
81) Use Isogen Export Files from IGO command for troubleshooting



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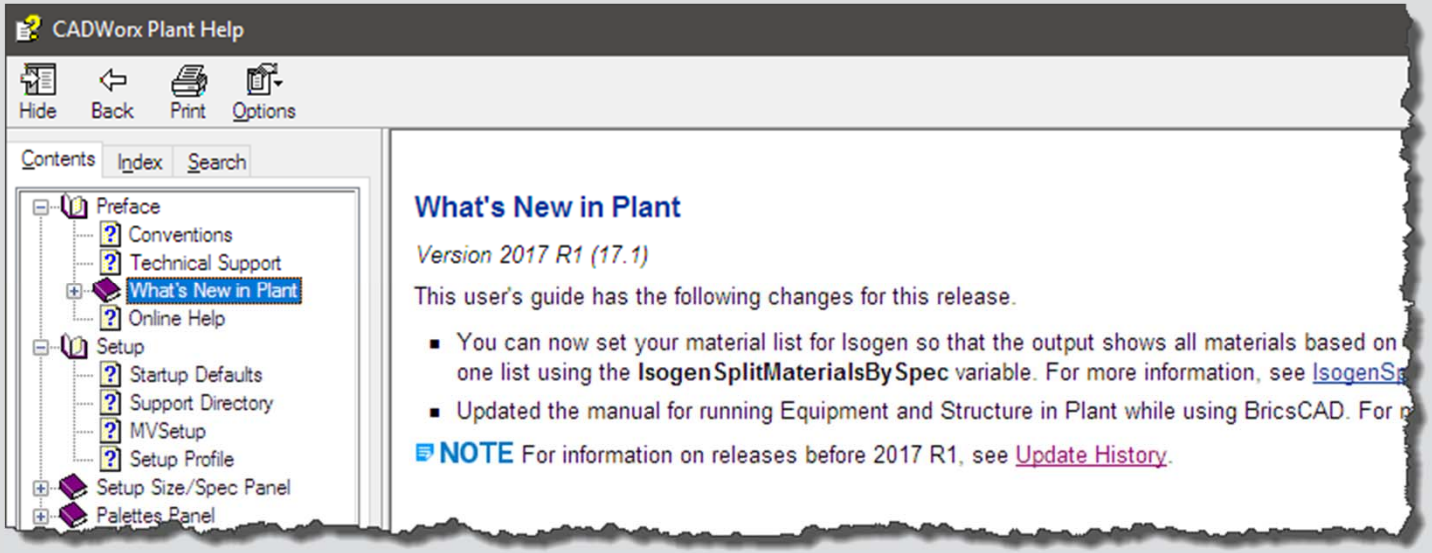
Learning – In CADWorx

82) MANUAL - Learn what you already have and the new features of every release

83) LSP command - Learn hidden commands and variables

84) Forget the A-Team… Join the Beta team



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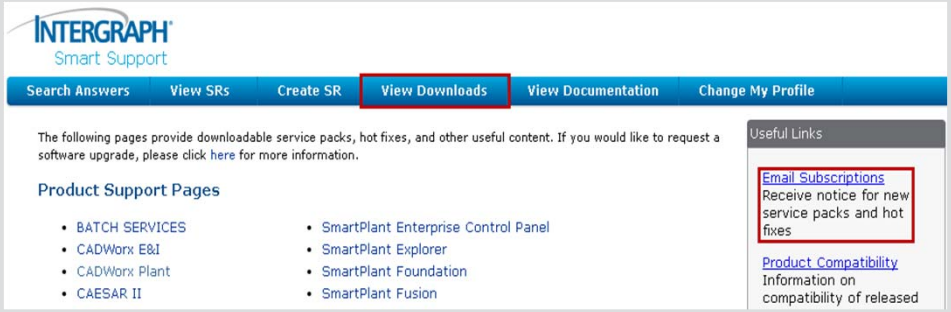
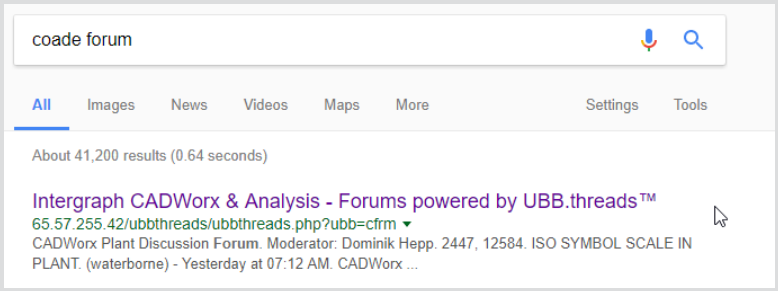
Learning – Staying in the know

85) Receive notification from SmartSupport when software updates are available

https://smartsupport1.intergraph.com



86) Follow Blogs for latest information



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87) Cant stress enough to make sure you are always up to date! A lot of issues and bugs are solved by making sure you have the latest service pack and hot fixes.

88) Attend the webinars that are put on by the Cadworx community

89) Attend the training every couple years

90) Tell everyone you know how awesome our software is,

THANK YOU

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