Walk-in Slide: AU 2014 Social Media Feed

1. Click on the link below, this will open your web browser

http://aucache.autodesk.com/social/visualization.html

2. Use “Extended Display” to project the website on screen if you plan to work on your computer. Use “Duplicate” to display same image on screen and computer.

PF 5035
Autodesk® Factory Design Suite: Asset Development Checklist

Rusty Belcher

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Twitter: @rustybelcher

Autodesk® Factory Design Suite: Asset Development Checklist

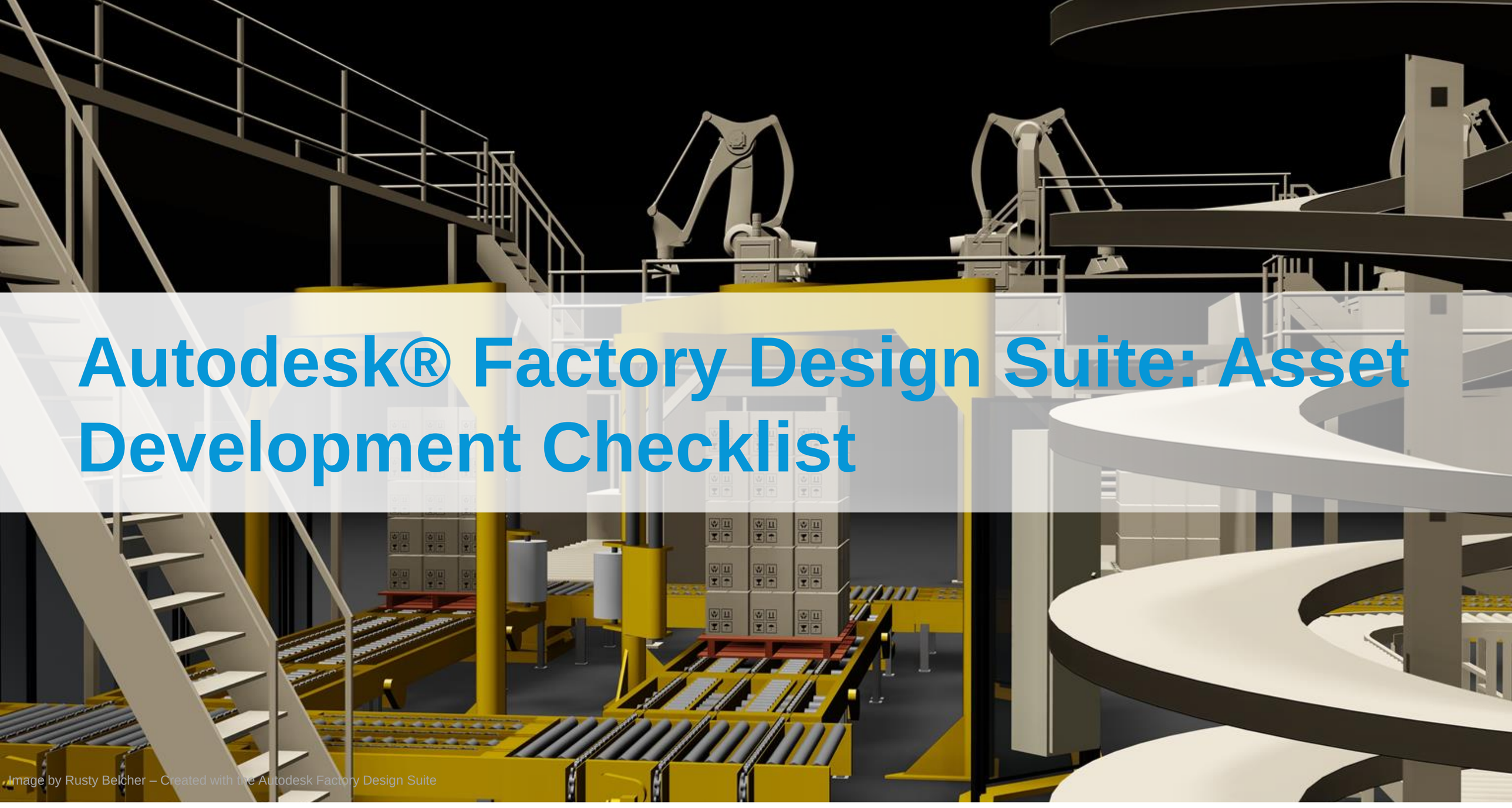


Image by Rusty Belcher – Created with the Autodesk Factory Design Suite

Class summary

There are so many things to consider when developing assets for Autodesk Factory Design Suite. Creating functional assets for your factory layouts can be challenging unless you have a detailed checklist for asset development. This class offers a step-by-step approach to developing fully functional assets. It accounts for everything from iProperties to iLogic. Join us as we explore the process of asset development while discussing each step in the checklist.

Key learning objectives

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

- Describe the asset checklist approach for developing factory assets
- Describe the different types of basic assets
- Understand the best practices for asset publishing – Keeping your assets simple
- Understand the importance of testing assets prior to publishing

The asset checklist approach for developing factory assets

The Checklist

- Standardized Method
- Repeatable Process
- Change as Necessary

The Ever Changing Checklist

Your checklist should change as new functionality is added to FDS.

Asset Types: Static and Dynamic
Basic Publishing

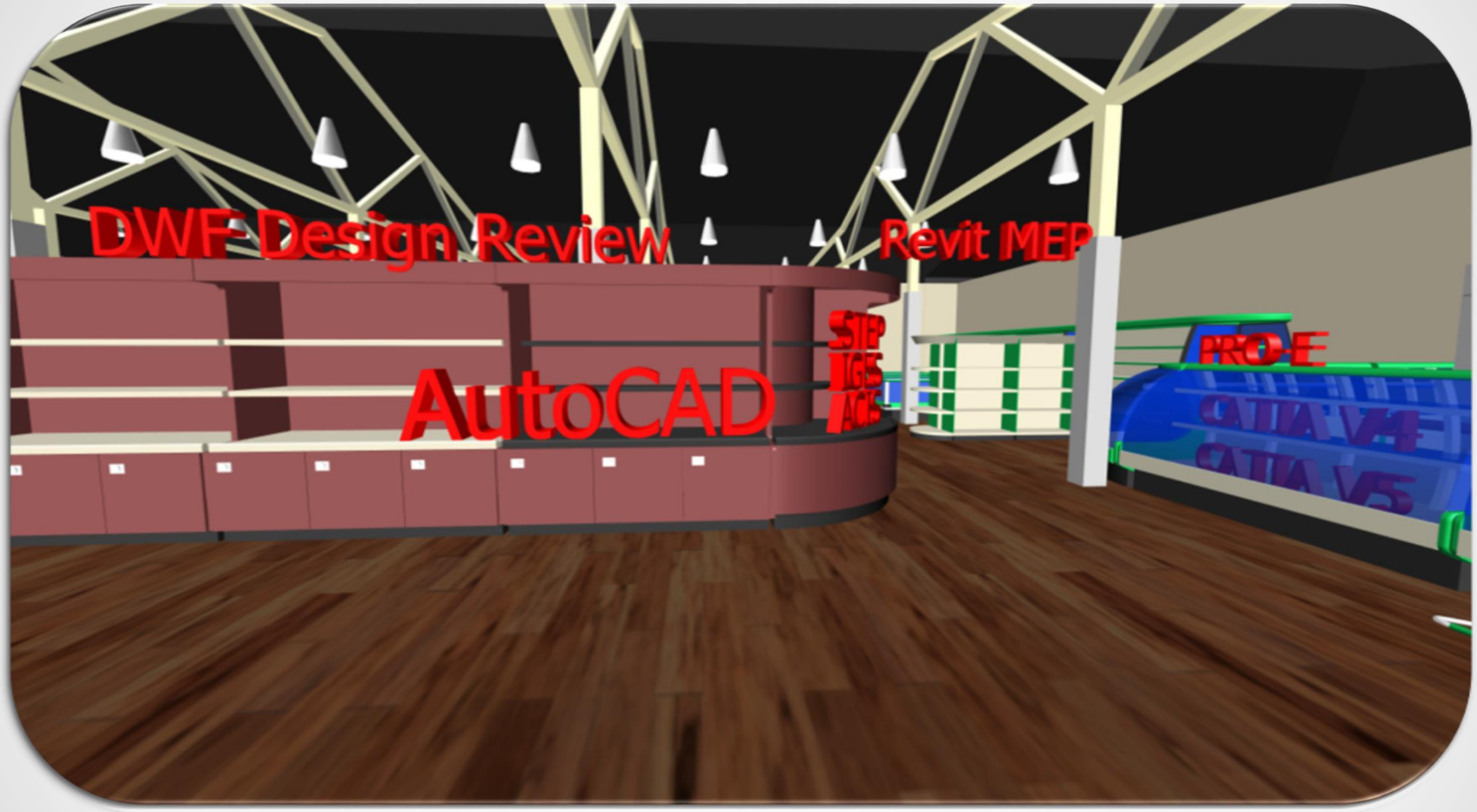
Static Assets

Static Assets represent a single unchanging form or shape. Equipment that does **NOT** change size.

Dynamic Assets

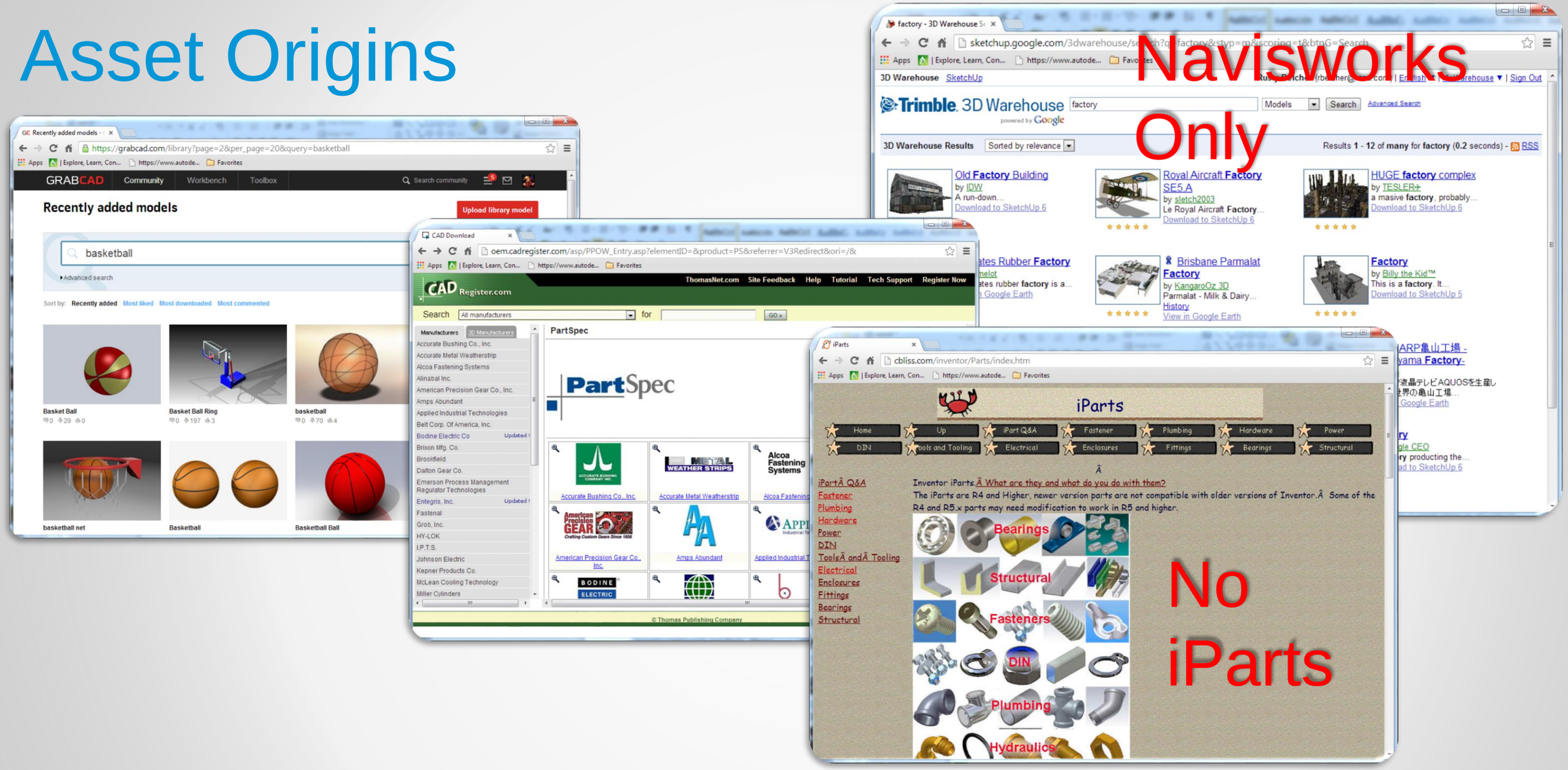
Dynamic Assets are designed to parametrically represent forms that will consistently change. Equipment that adjusts in length, width, or height each time it is inserted.

Asset Origins



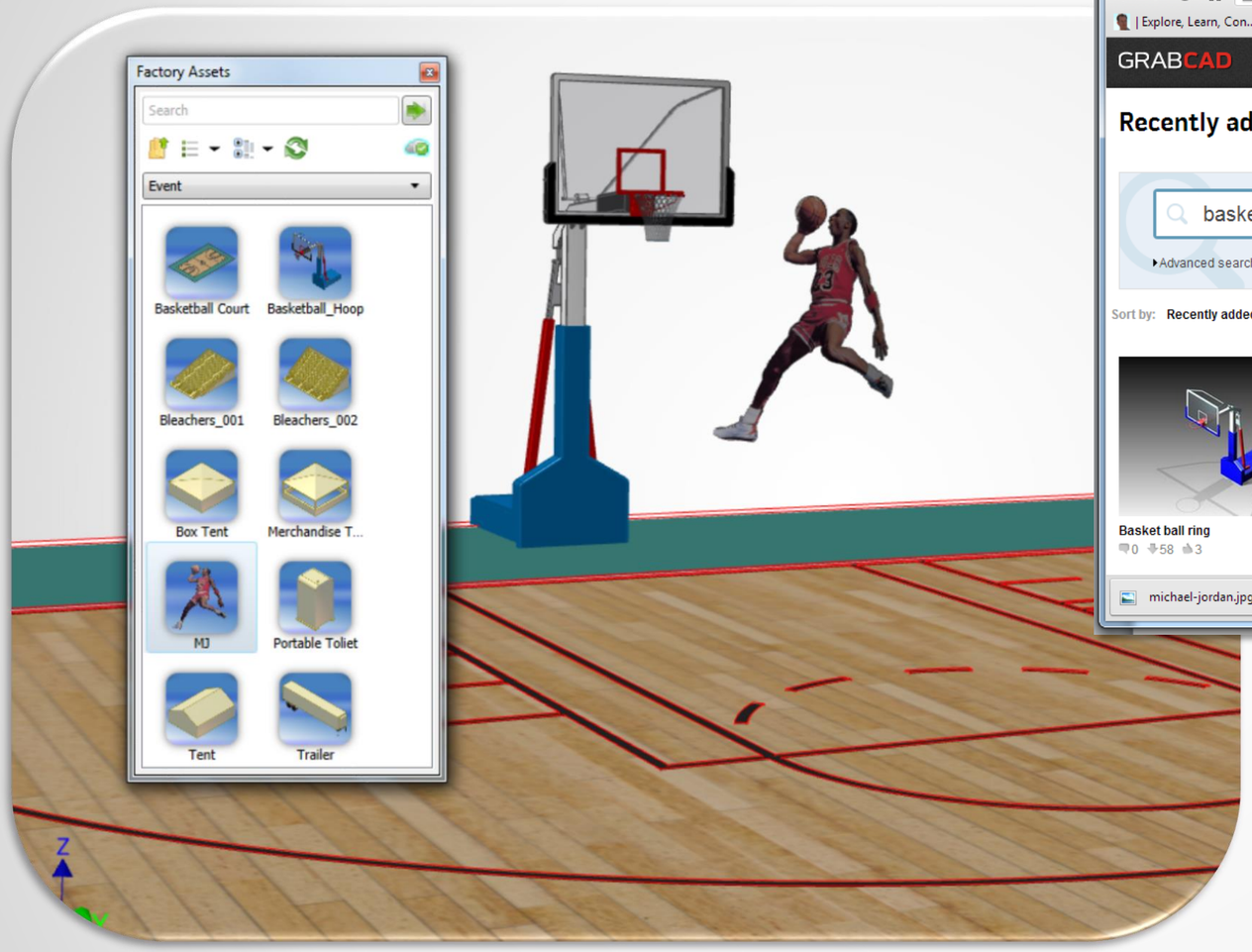
Almost any 3D model can be used as an Asset

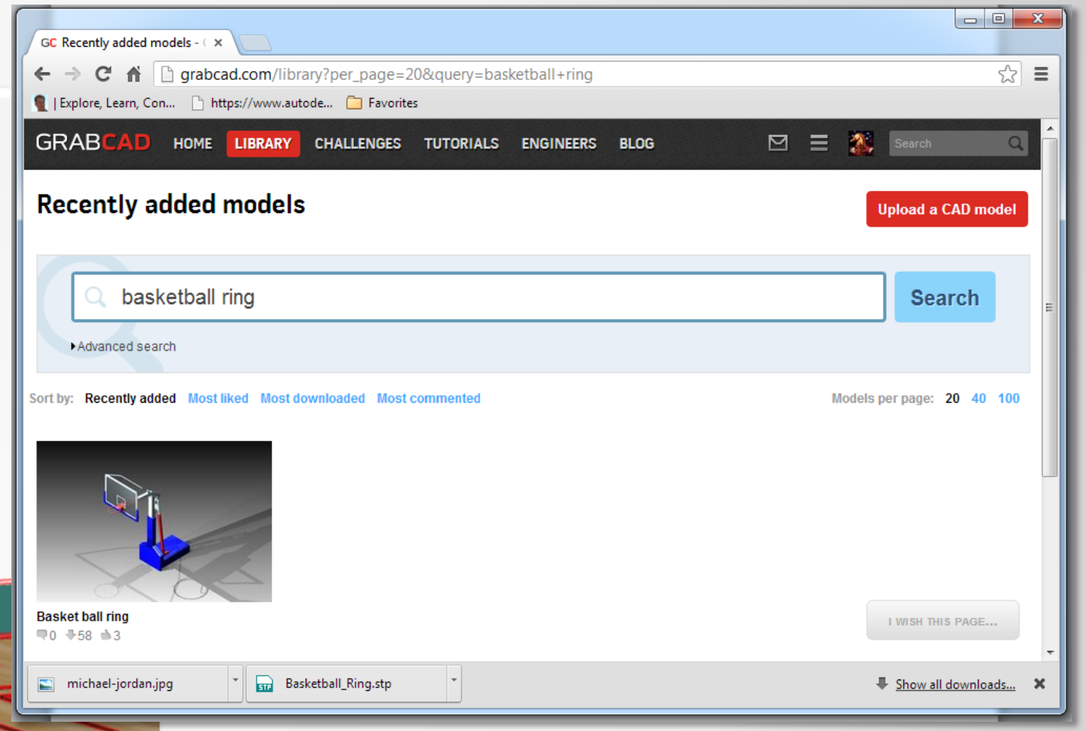
Asset Origins



Almost any 3D model can be used as an Asset

Publishing Static Assets

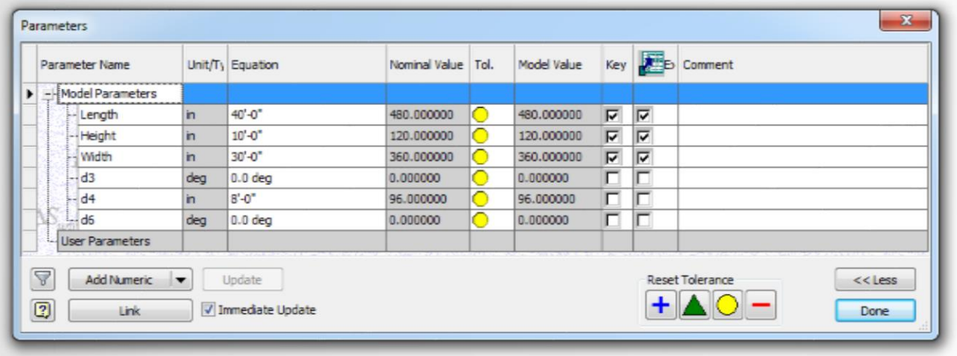


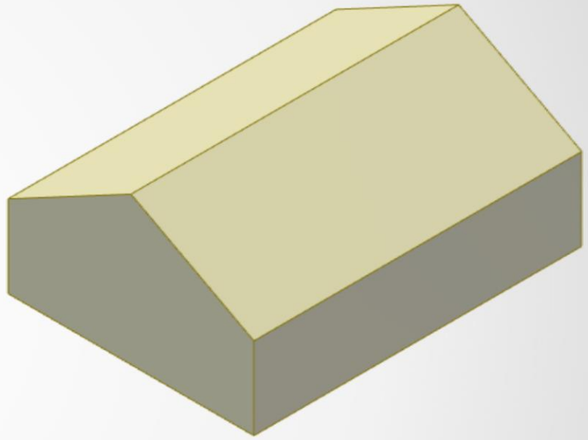


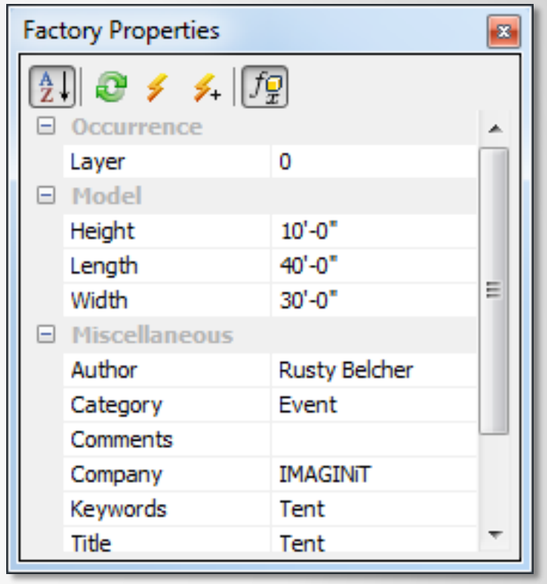
- Landing Surface
- Connectors
- Meta Data
- Descriptor

Sports Equipment downloaded from GRABCAD

Publishing Dynamic Assets – Inventor Based





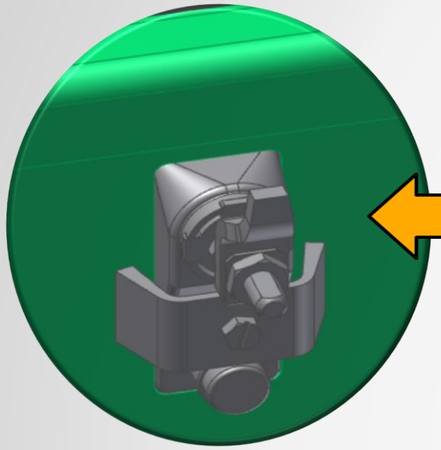


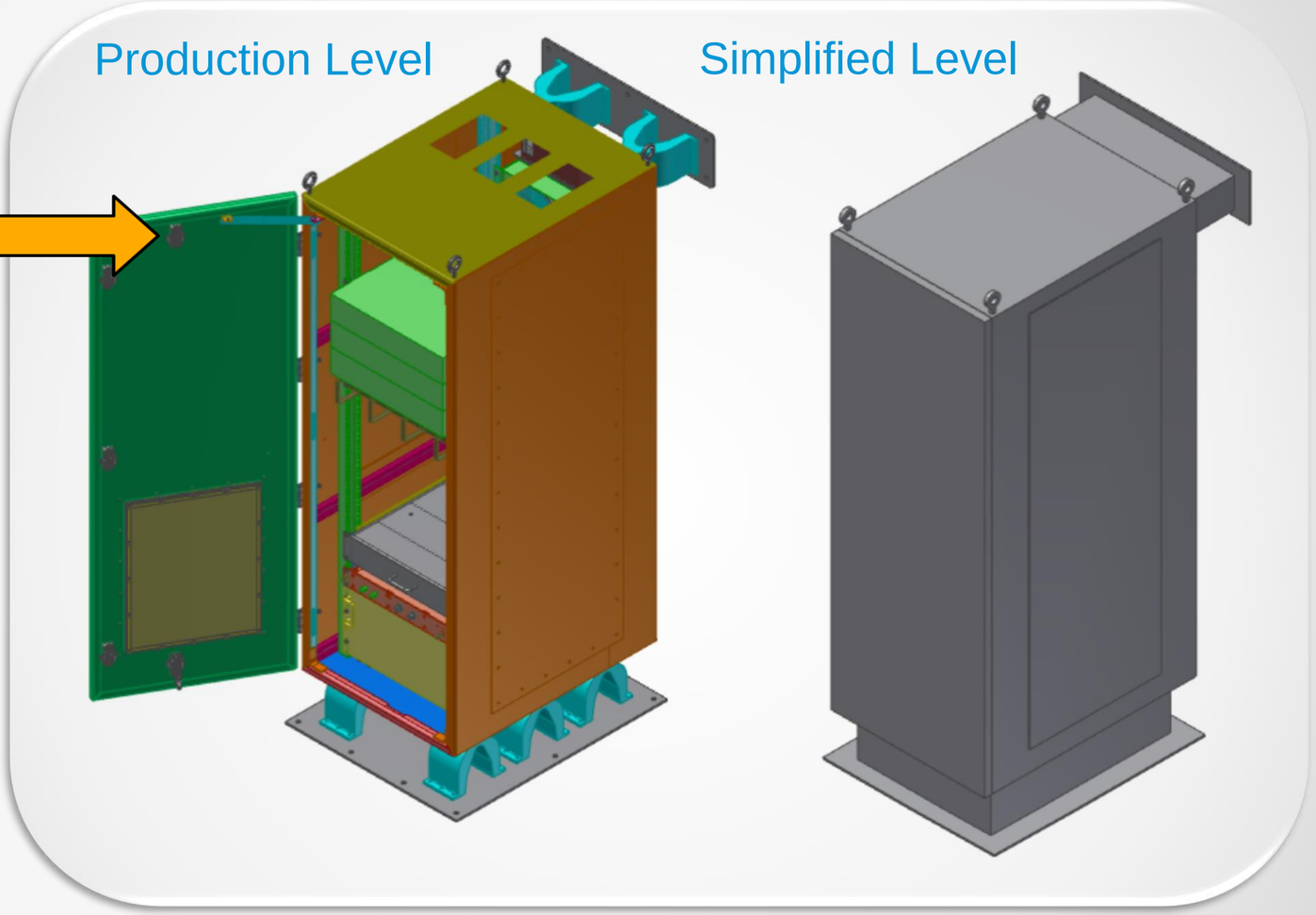
- Key Parameters
- Landing Surface
- Connectors
- Meta Data
- Descriptor
- iLogic
- Asset Variants

Key Parameters are Utilized to Control the Asset Size

Best Practices – Keep your Assets Simple

Best Practice – Low Detail

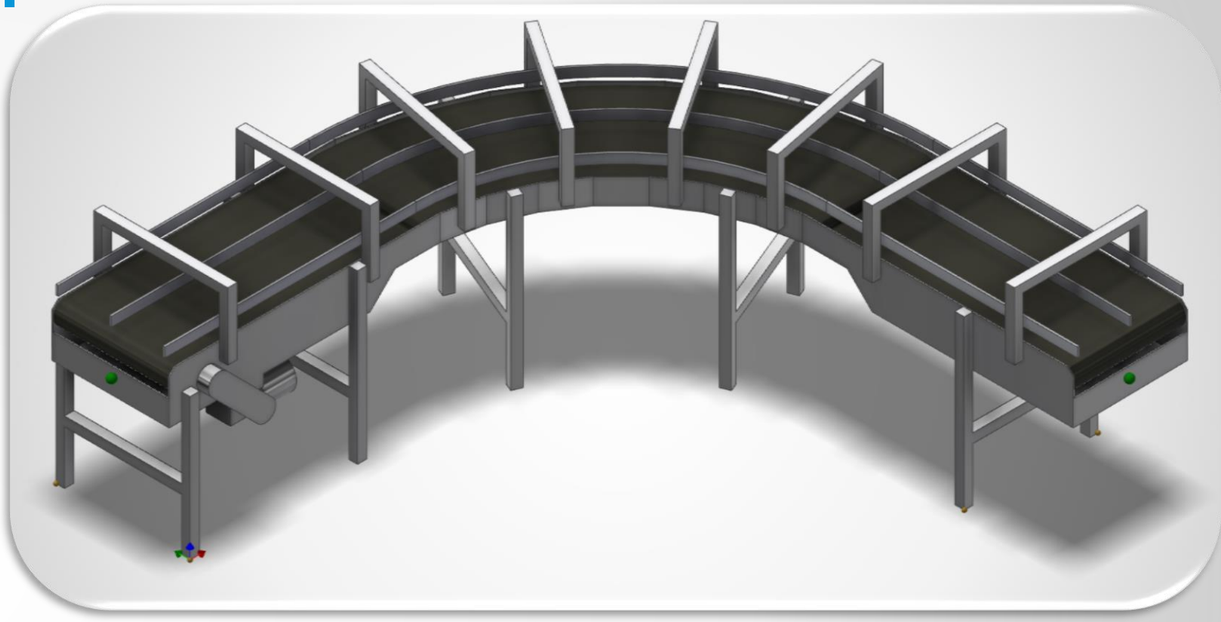




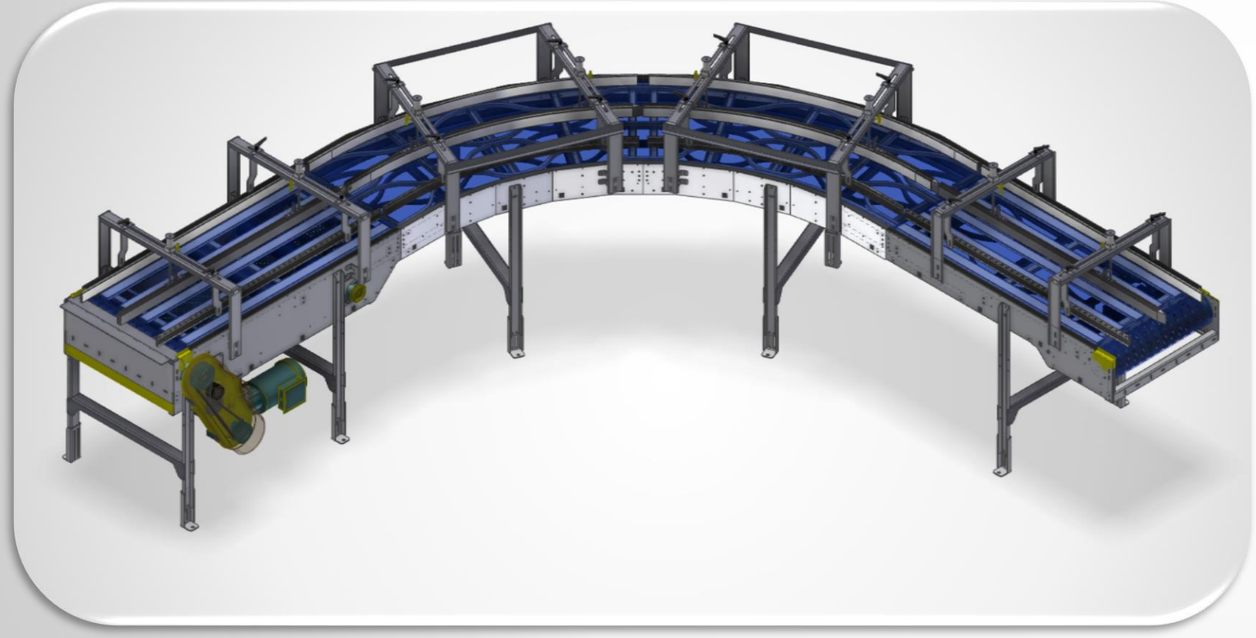
A Simplified Level of Model Detail is Recommended

Best Practice – Low Detail

Simplified Level



Production Level

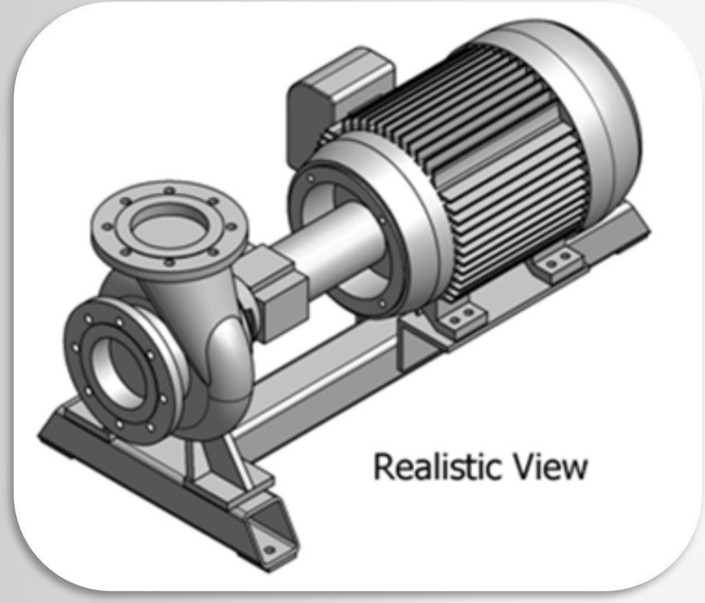


- No Fillets / Chamfers
- No Holes
- No Voids
- No Fasteners
- Single Part / Multi-Body
- Simplified Form
- Bounding Box
- Bounding Cylinders

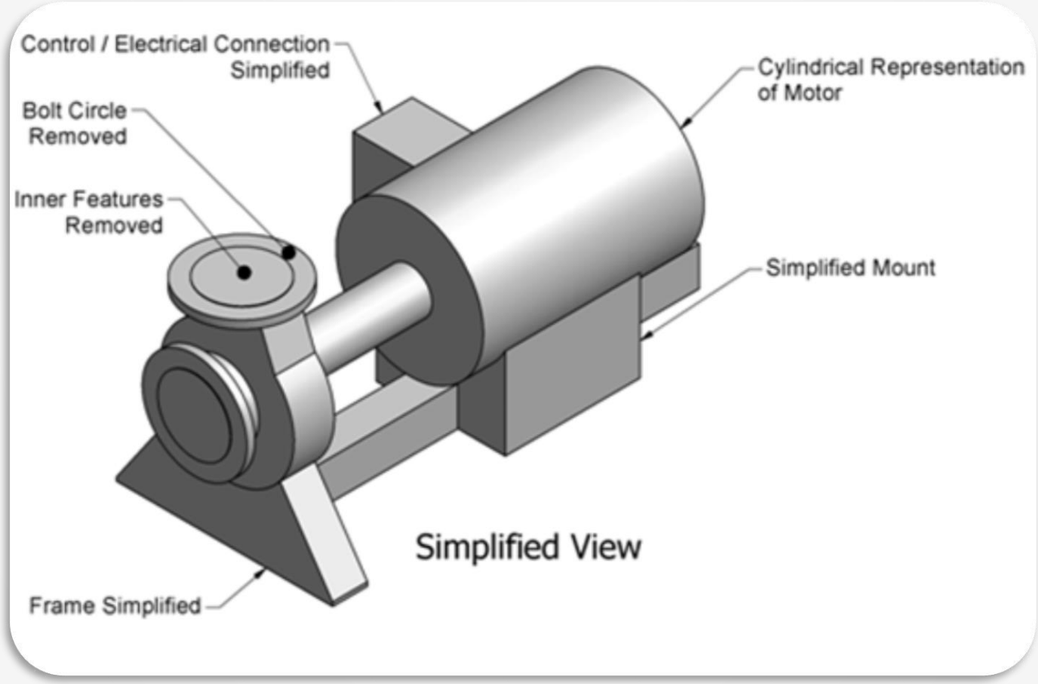
A Simplified Level of Model Detail is Recommended

Best Practice – Low Detail

Production Level



Simplified Level



- No Fillets / Chamfers
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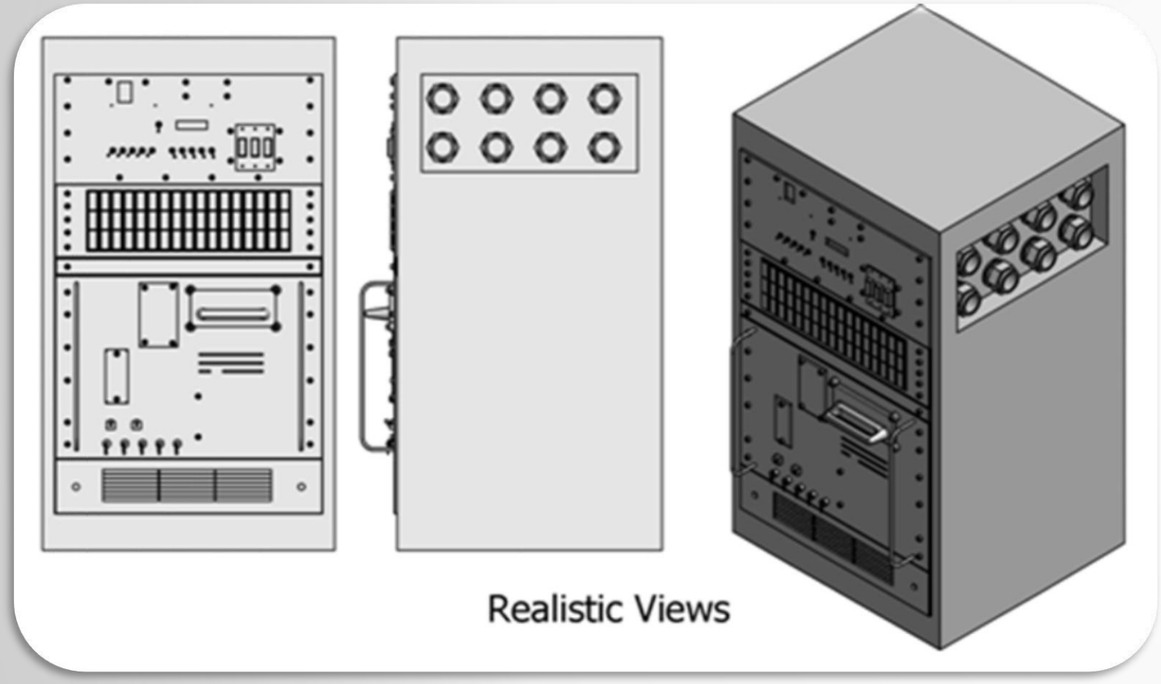
- Bounding Cylinders

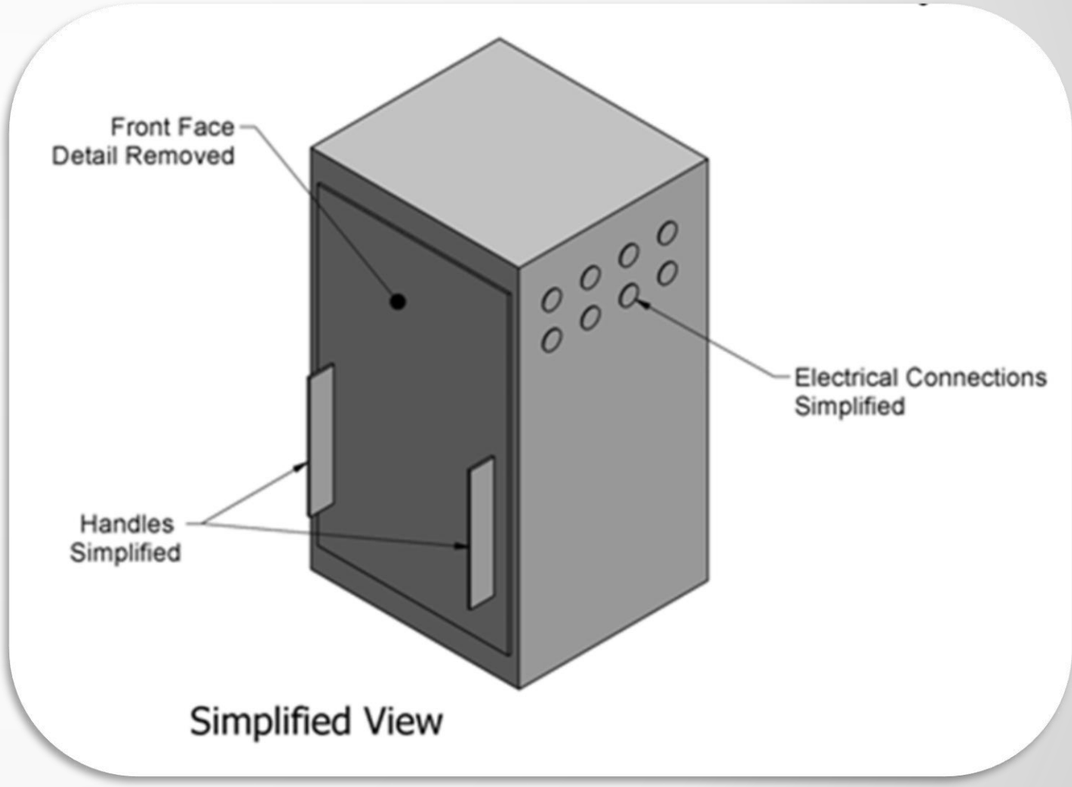
A Simplified Level of Model Detail is Recommended

Best Practice – Low Detail

Production Level

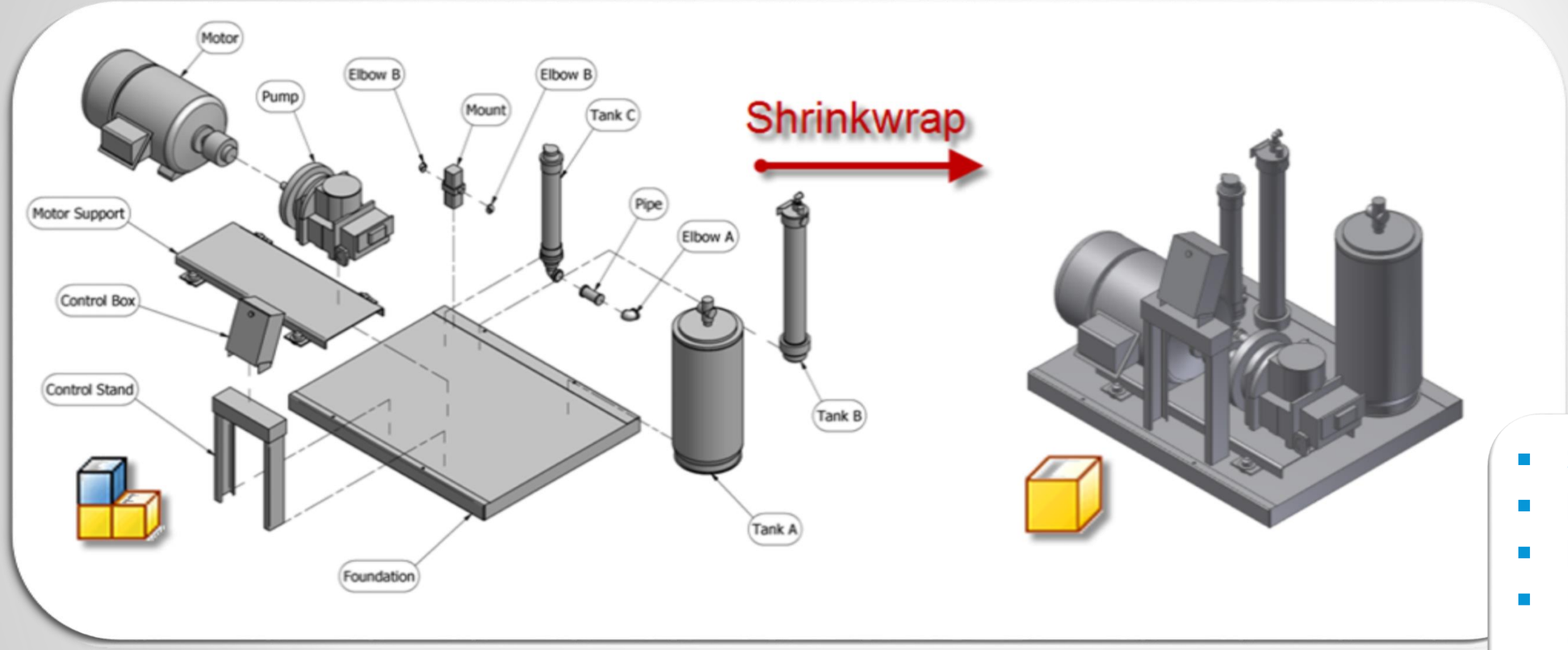


Simplified Level



A Simplified Level of Model Detail is Recommended

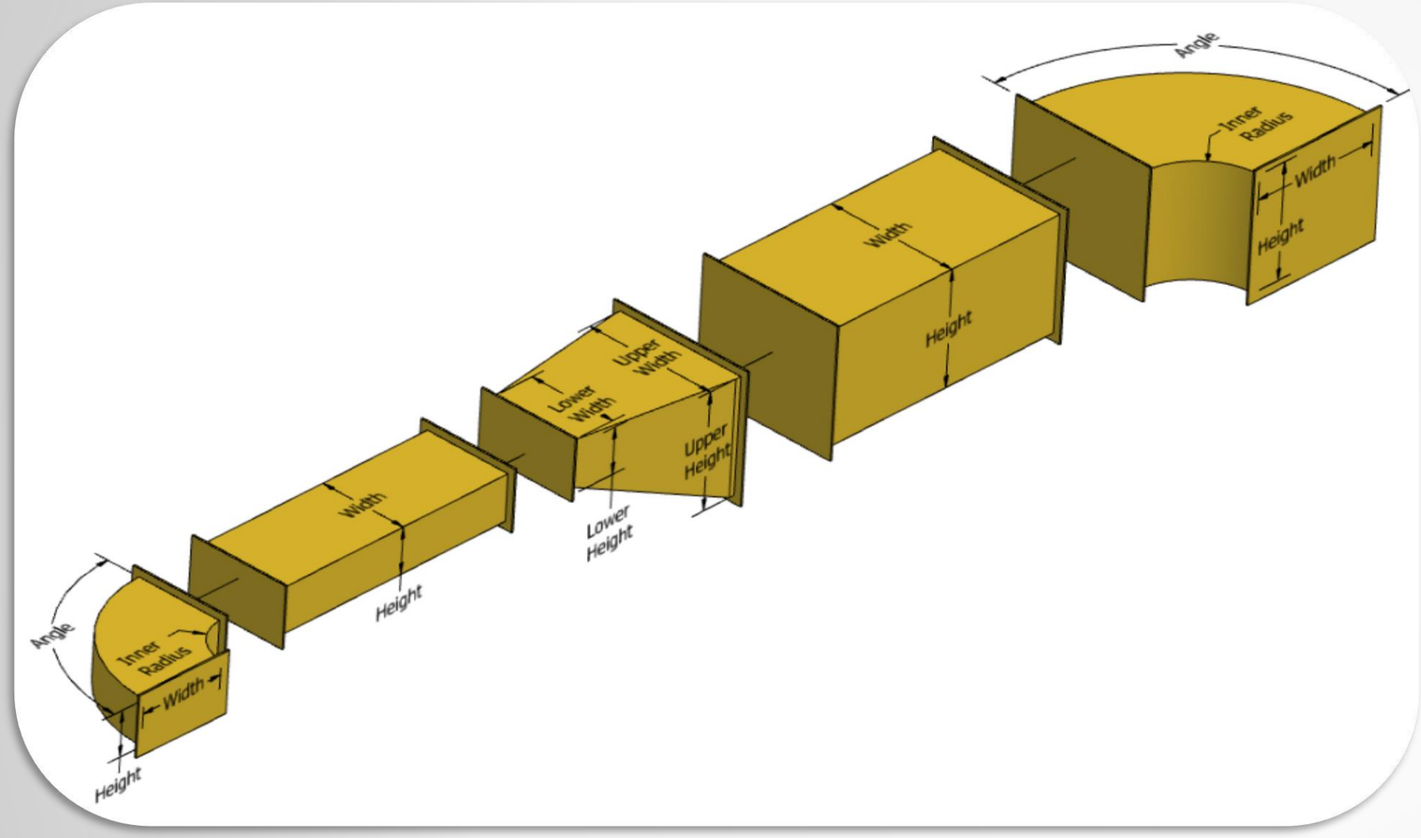
Best Practice – Single Part vs. Assembly



- Shrinkwrap
- Multi-Body Modeling
- Multi-Body Import
- Inventor Simplification

Simple Single Parts are Generally Preferred over Assemblies

Best Practice – Parameters



Parameters

Parameter Name	Unit/Ty	Equation	Nominal Value	Tol.	Model Value
Model Parameters					
Length	in	12 in	12.000000		12.000000
Width	in	8 in	8.000000		8.000000
Height	in	6 in	6.000000		6.000000
d3	in	3 in	3.000000		3.000000
d4	in	1 in	1.000000		1.000000
d5	deg	0.0 deg	0.000000		0.000000
Reference Paramet...					
d6	in	8.883 in	8.883088		8.883088
d7	in	10.000 in	10.000000		10.000000
User Parameters					
Holes	ul	8 ul	8.000000		8.000000

Add Numeric | Update | Link | Immediate Update

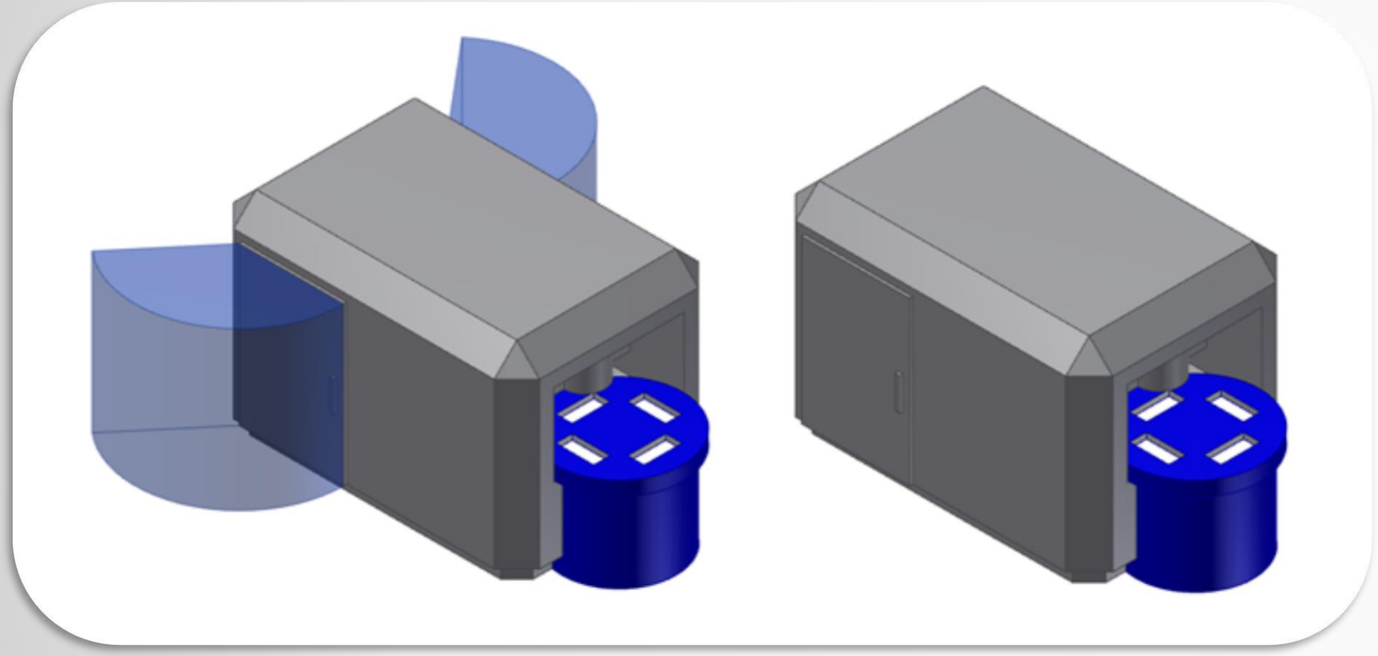
- Named Parameters
- Key Parameters
- Export Parameters
- Multi-Value Parameters
- Test Parameters

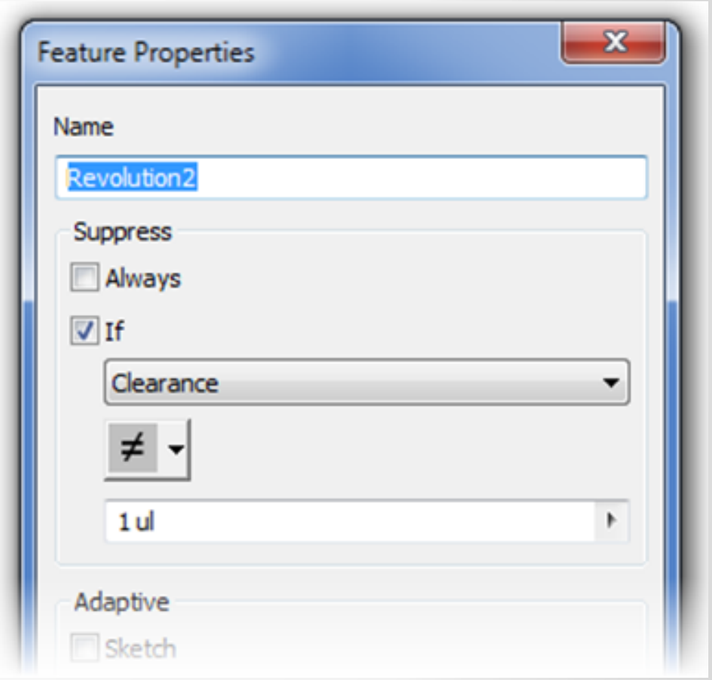
Parameters are crucial to Dynamic Asset functionality

Best Practice – On / Off Parameters

Clearance On

Clearance Off





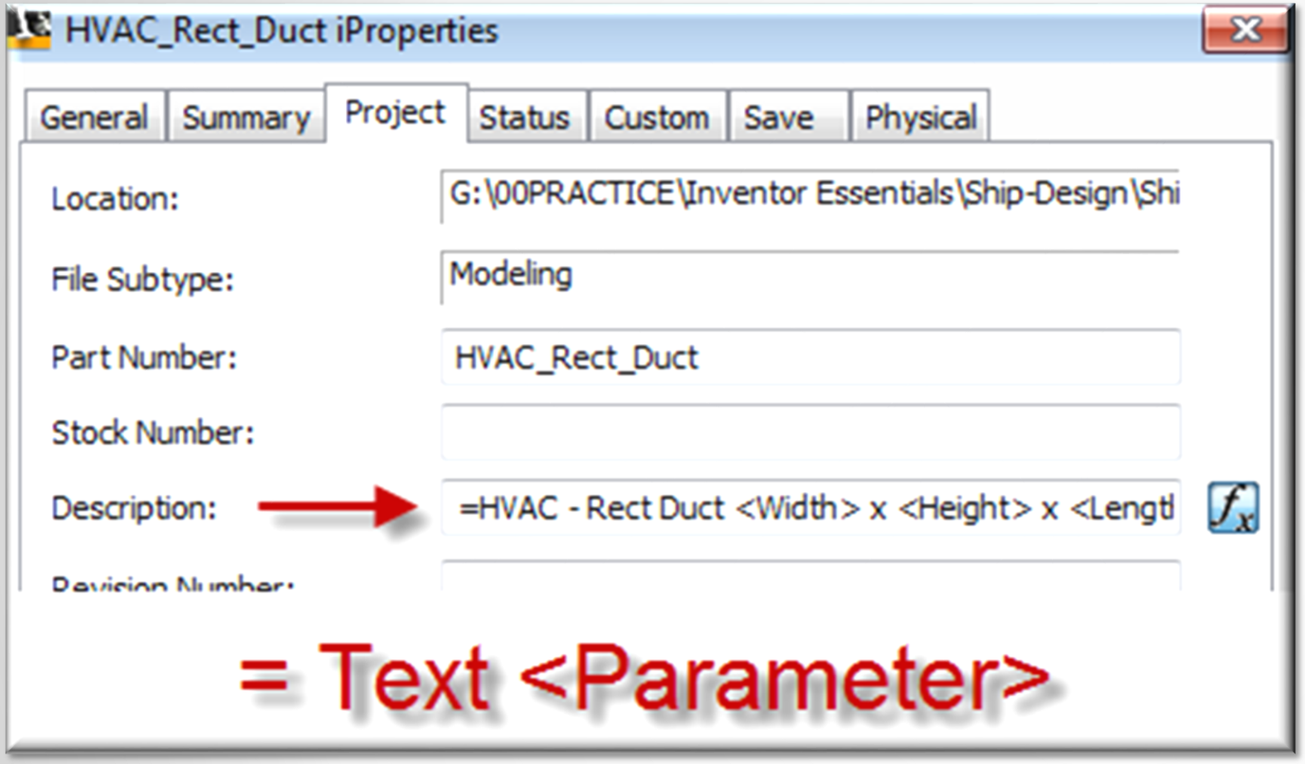
Use a Multi-Value Parameter to control the suppression of a model feature

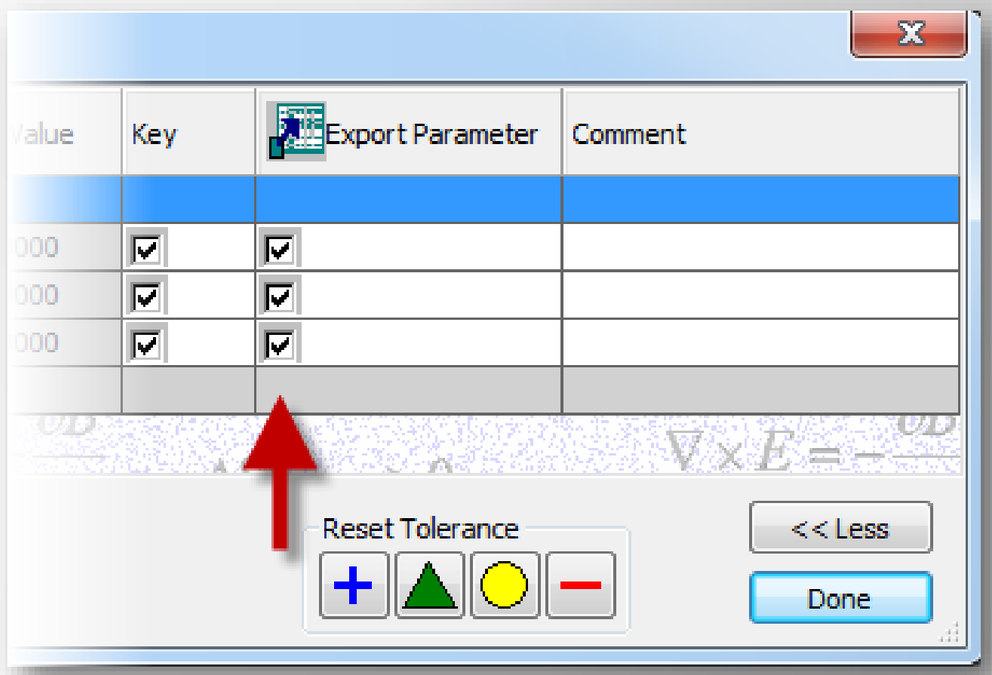
Best Practice – iProperties (Meta Data)

iProperty	Information
Title	Formal Name or Part Name
Part Number	Automatically set to the filename by default
Description	General description of the asset. Could be mapped to parameters like Length, Width, and Height.
Company	Very Helpful for Cloud Based Assets
Category	Your Cloud Based Assets are managed by Categories.
Author	That's You
Keywords	Very Useful for Searching Cloud Based Assets.
Comments	Useful Tips on using the Asset.

iProperty Data is Used in Many Downstream Workflows

Best Practice – Mapping Parameters to iProperties

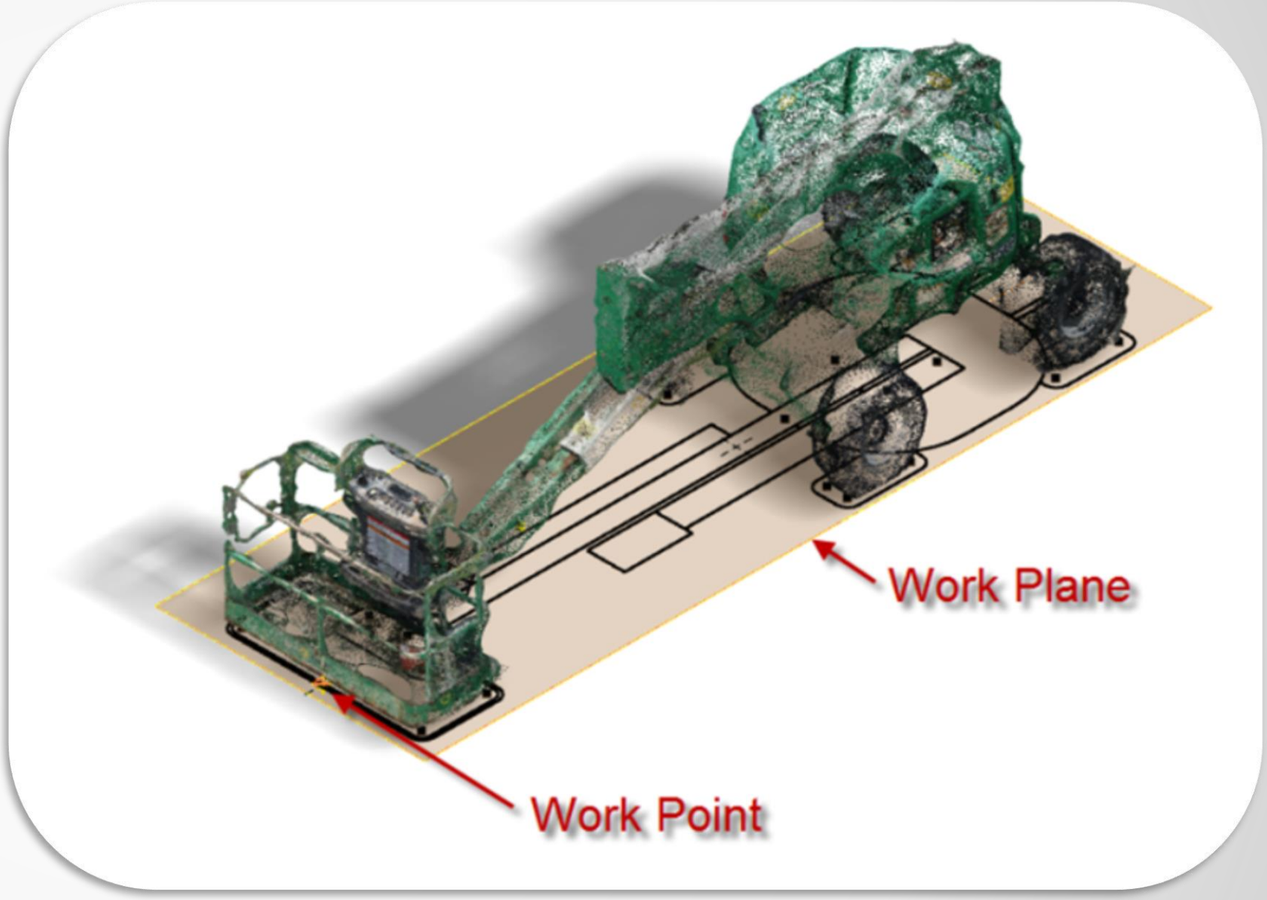




Parameters must be marked for export.

Map Parameter Values to Automatically Update Asset Properties

Best Practice – Work Features and Sketches On Prior to Publishing

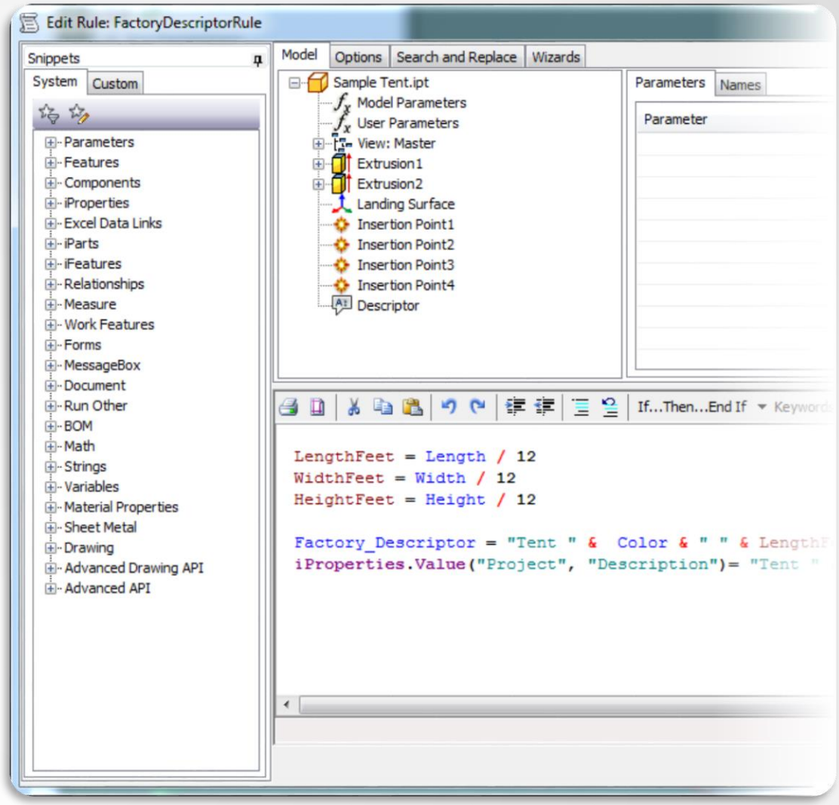


Necessary work features must be visible prior to publishing.

Best Practice – iLogic

```
If Guard_Placement = "Both" Then
Feature.IsActive("Guard_Right") = True
Feature.IsActive("Guard_Left") = True

ElseIf Guard_Placement = "None" Then
Feature.IsActive("Guard_Right") = False
Feature.IsActive("Guard_Left") = False

ElseIf Guard_Placement = "Left" Then
Feature.IsActive("Guard_Right") = False
Feature.IsActive("Guard_Left") = True

ElseIf Guard_Placement = "Right" Then
Feature.IsActive("Guard_Right") = True
Feature.IsActive("Guard_Left") = False

End If
```

```
Select Case Body_Color
Case "Red"
iProperties.PartColor = "Red"
Case "Blue"
iProperties.PartColor = "Blue"
Case "Green"
iProperties.PartColor = "Green"
Case "Default"
iProperties.PartColor = "Default"
Case "Yellow"
iProperties.PartColor = "Yellow"
Case "Cyan"
iProperties.PartColor = "Cyan"
Case "White"
iProperties.PartColor = "White"
Case "Orange"
iProperties.PartColor = "Orange"
End Select
```



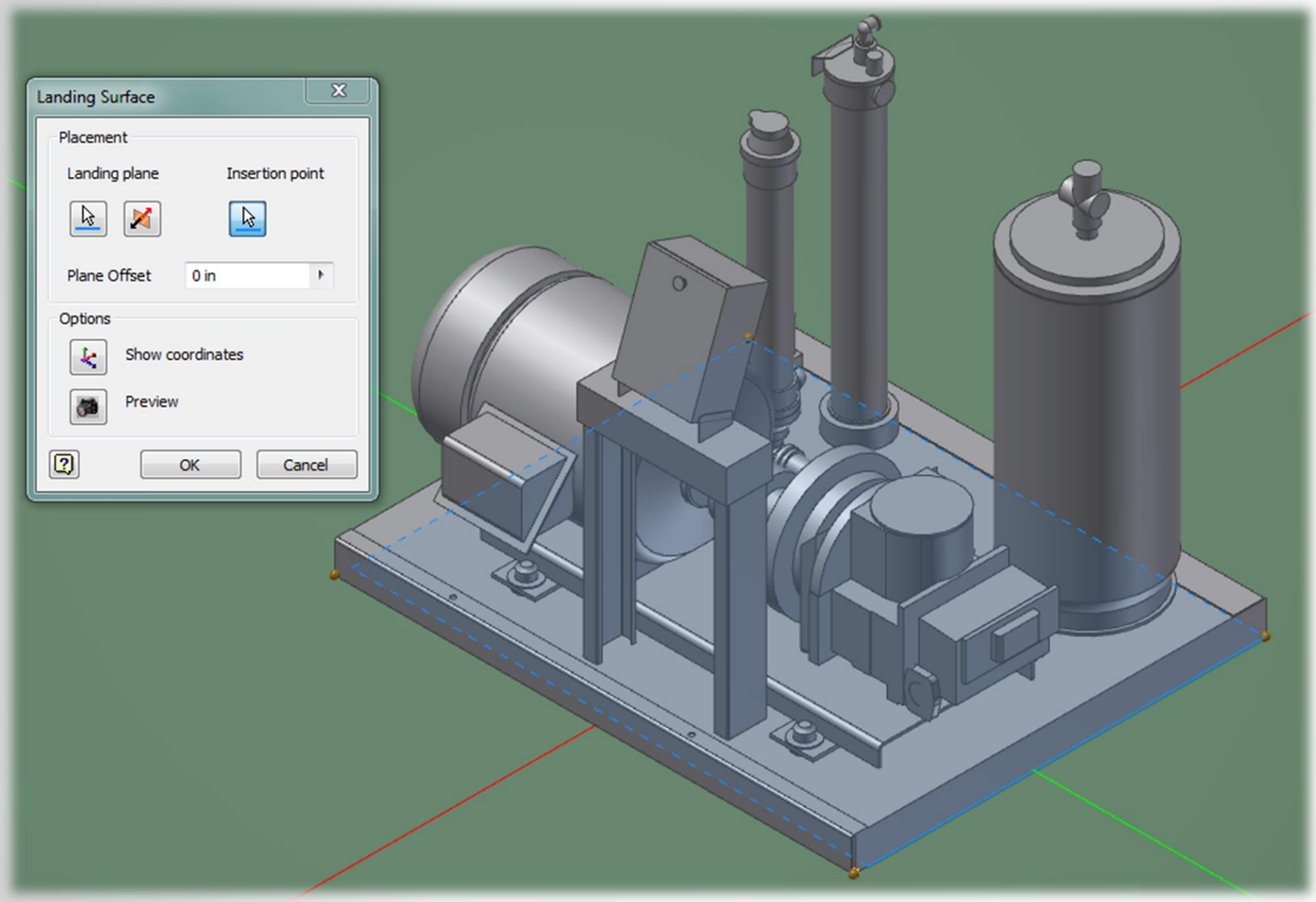

```
LengthFeet = Length / 12
WidthFeet = Width / 12
HeightFeet = Height / 12

Factory_Descriptor = "Tent " & LengthFeet & "ft" & " x " & WidthFeet & "ft" & " x " & HeightFeet & "ft"
iProperties.Value("Project", "Description")= "Tent " & LengthFeet & "ft" & " x " & WidthFeet & "ft" & " x " & HeightFeet & "ft"
```

- Colors
- Parameter Values
- Feature Suppression
- iProperties
- Factory Descriptors
- If / Then

When Parameters are not Enough

Warning – Keep it Simple

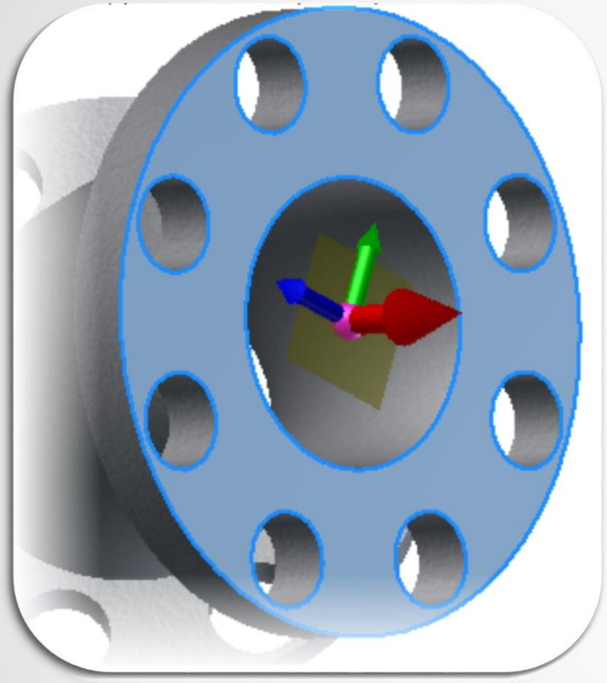
Best Practice – Landing Surface



- Multiple Insertion Points
- Work Features for Insertion Points
- Sketches for Insertion Points
- Offset Distance from Floor
- Bounding Boxes are used if no Landing Surface is defined

Note: An asset does not require a landing surface.

Best Practice – Connectors

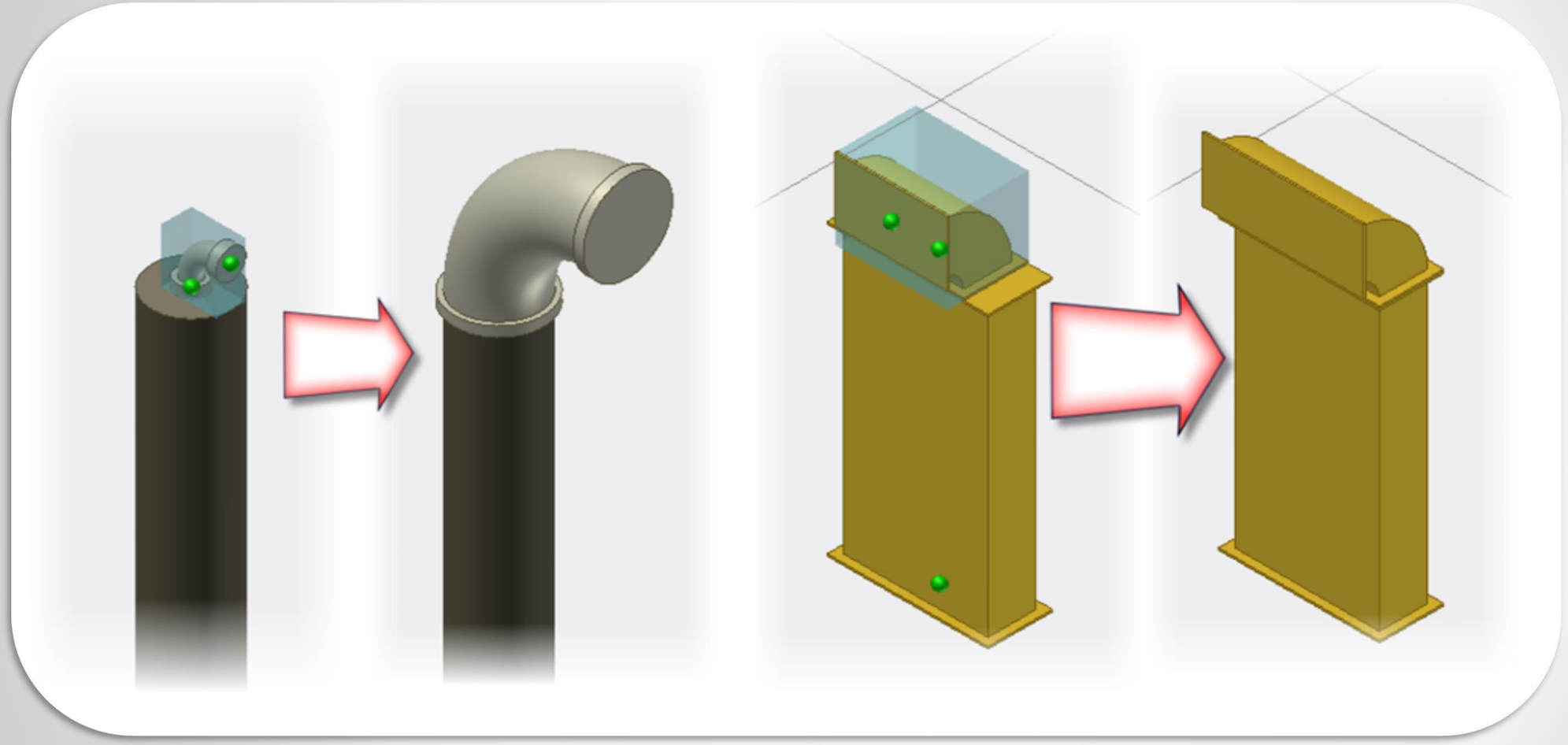


- Planar Face
- Vertex
- Midpoint
- Endpoint
- Hole Center
- Work Point
- Work Plane
- A Sketch

Place Connectors in Logical Locations

Note: Connectors are not Required

Best Practice – Connector Classes (Optional)



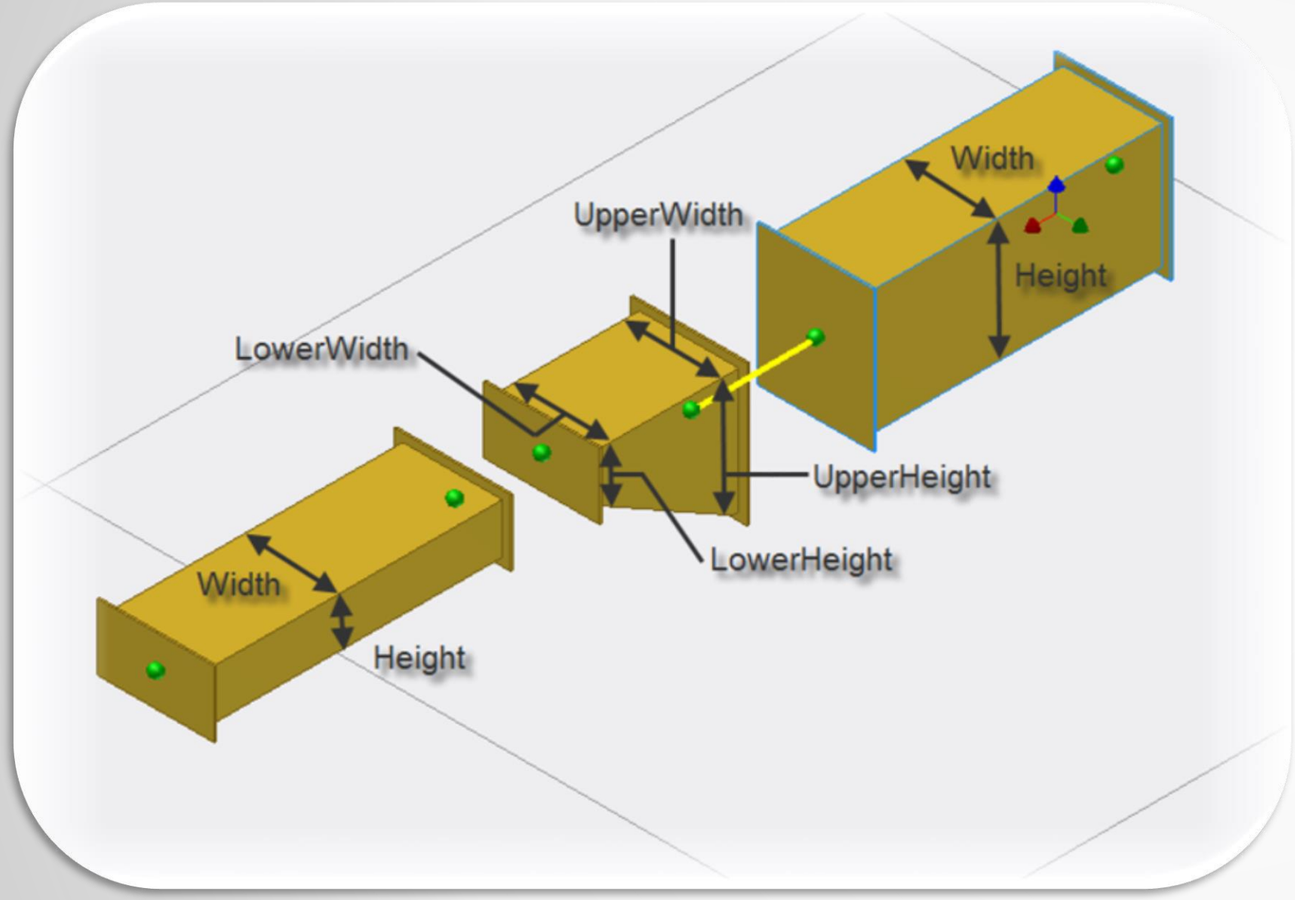
Allows Assets to Resize during Connection

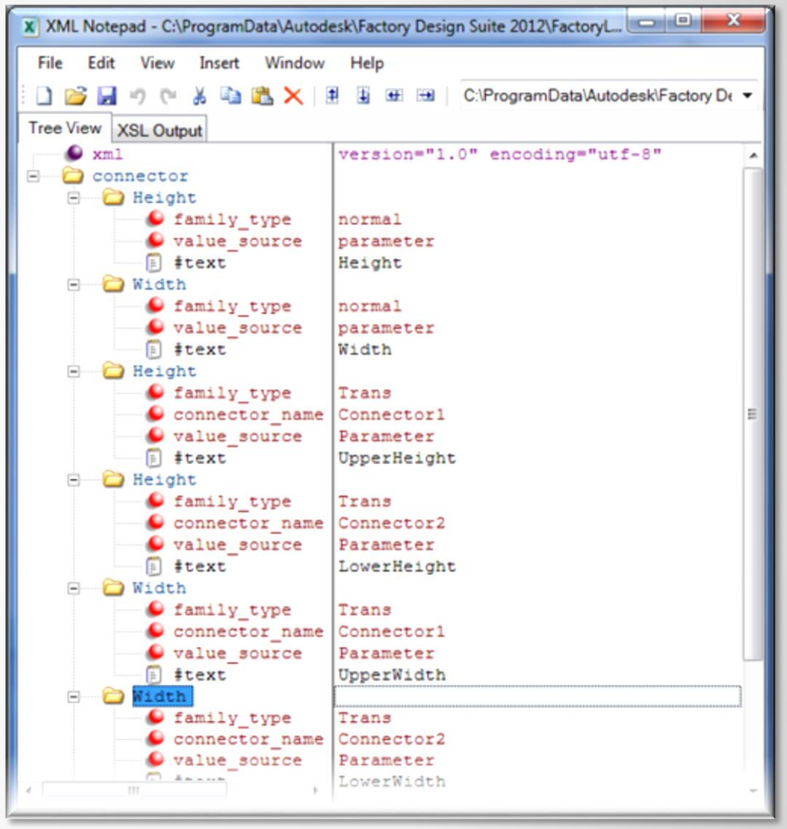
Best Practice – Connector Classes XML

```
<connector>
<ConveyorWidth value_source="parameter">Width</ConveyorWidth> <ConveyorHeight family_type="normal"
value_source="parameter">Height</ConveyorHeight> <ConveyorHeight family_type="inclined" connector_name="Connector1"
value_source="Parameter">UpperHeight</ConveyorHeight> <ConveyorHeight family_type="inclined" connector_name="Connector2"
value_source="Parameter">LowerHeight</ConveyorHeight> <ConveyorHeight family_type="spiral" connector_name="UpperConnector"
value_source="Parameter">UpperHeight</ConveyorHeight> <ConveyorHeight family_type="spiral" connector_name="LowerConnector"
value_source="Parameter">LowerHeight</ConveyorHeight>
</connector>
```

XML Format may vary depending on the author

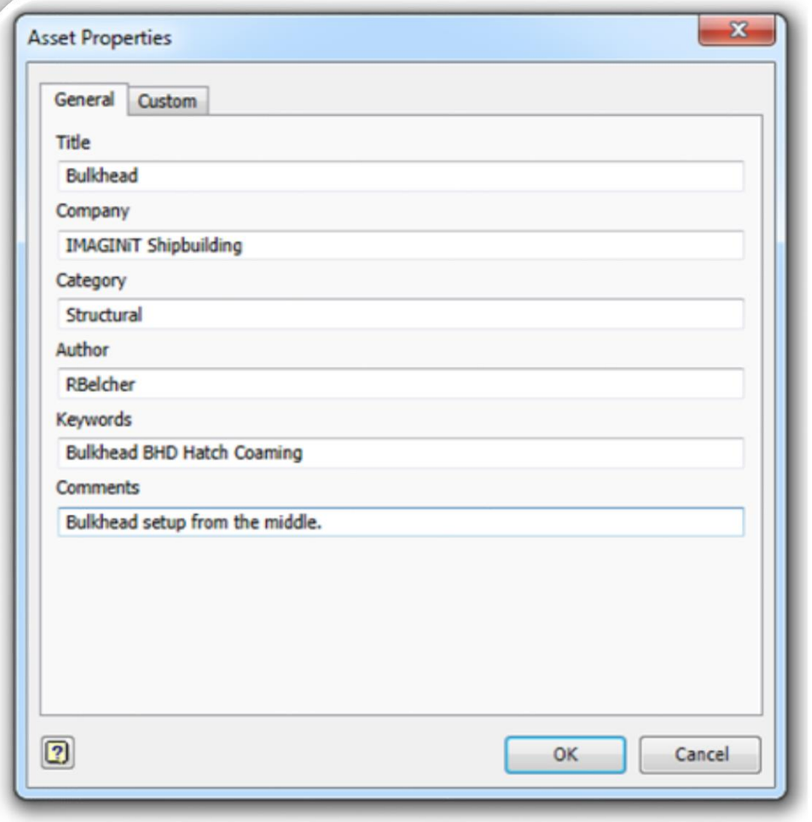
Best Practice – Connector Classes (Optional)

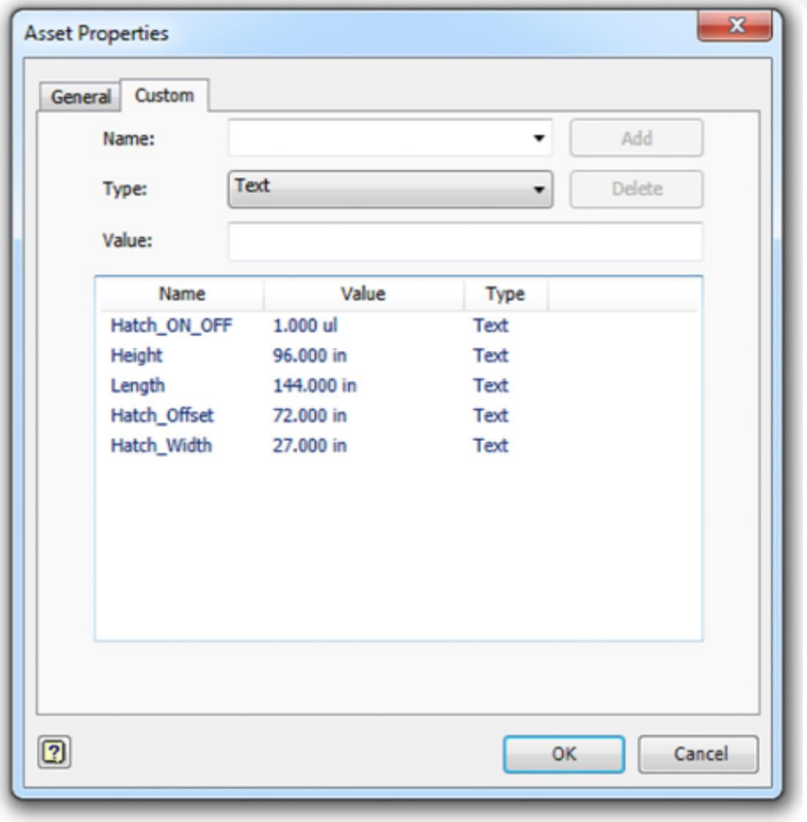




Use XML Notepad to Create New Connector Classes

Best Practice – Asset Properties

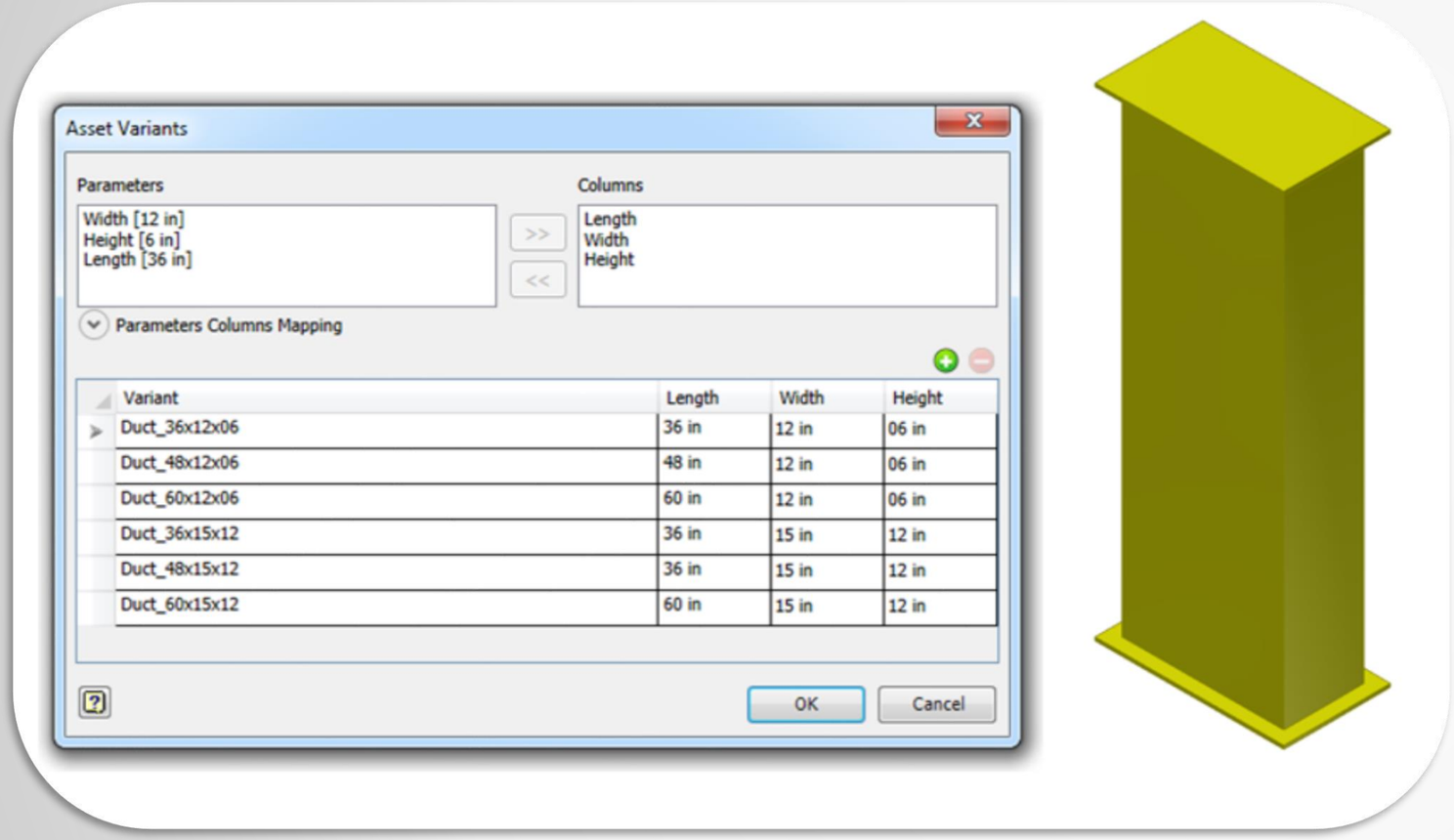


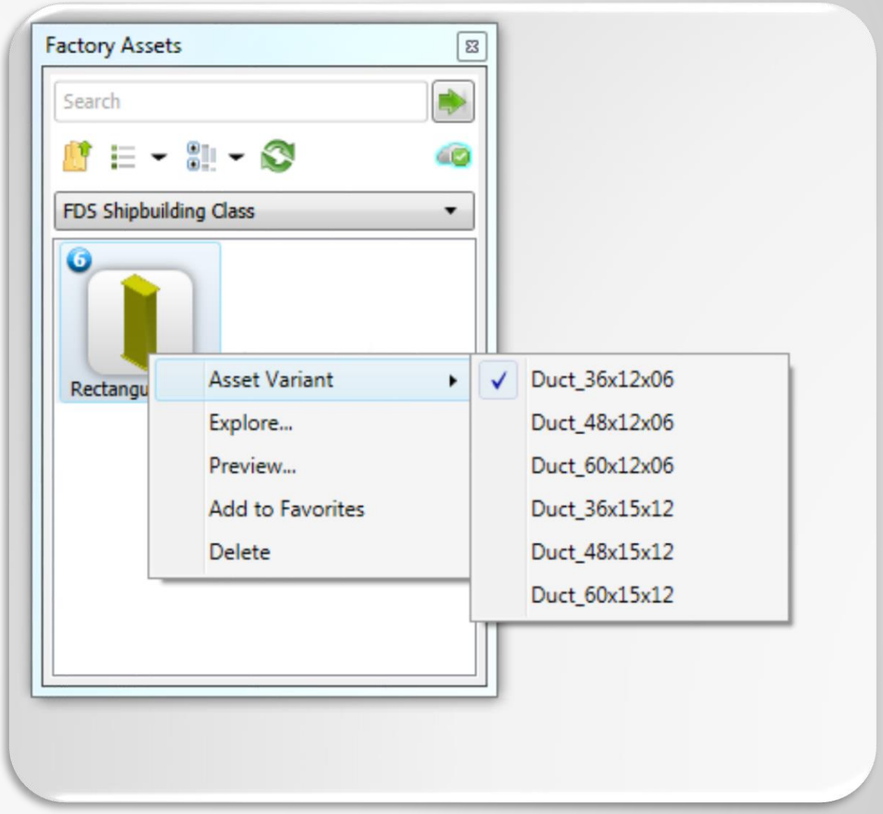


Note:
Description is Unavailable

Asset Properties offers a select set of iProperties
Recommend filling out the Meta Data in iProperties

Best Practice – Asset Variants





Asset Variants are available in Inventor and AutoCAD

Best Practice – iLogic

```
If Guard_Placement = "Both" Then
Feature.IsActive("Guard_Right") = True
Feature.IsActive("Guard_Left") = True

ElseIf Guard_Placement = "None" Then
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End If
```

```
Select Case Body_Color
Case "Red"
iProperties.PartColor = "Red"
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Case "Green"
iProperties.PartColor = "Green"
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iProperties.PartColor = "Default"
Case "Yellow"
iProperties.PartColor = "Yellow"
Case "Cyan"
iProperties.PartColor = "Cyan"
Case "White"
iProperties.PartColor = "White"
Case "Orange"
iProperties.PartColor = "Orange"
End Select
```

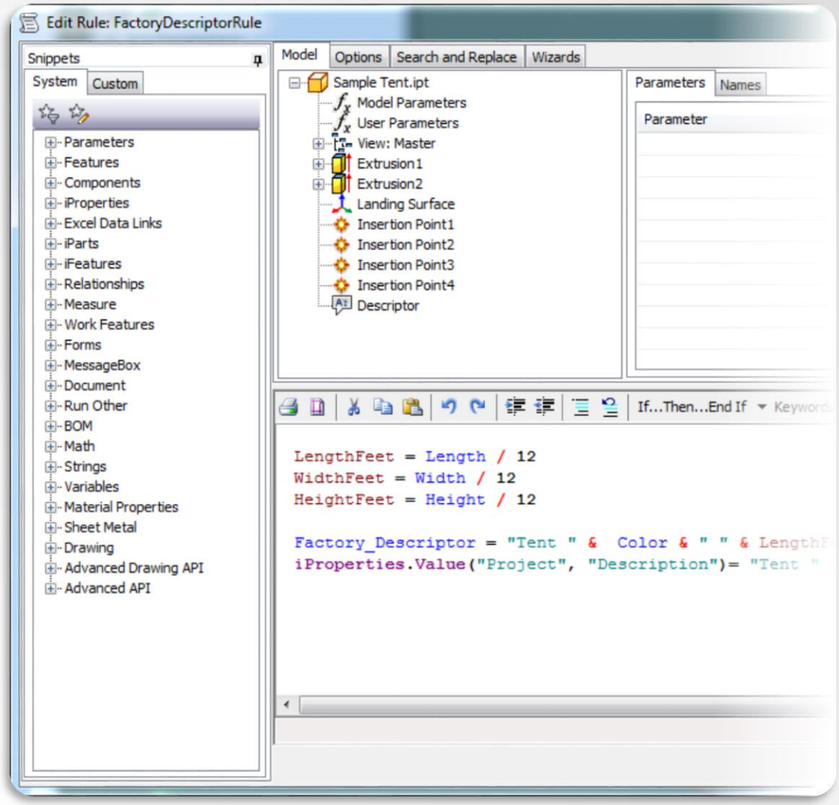


```
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HeightFeet = Height / 12

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iProperties.Value("Project", "Description")= "Tent " & LengthFeet & "ft" & " x " & WidthFeet & "ft" & " x " & HeightFeet & "ft"
```
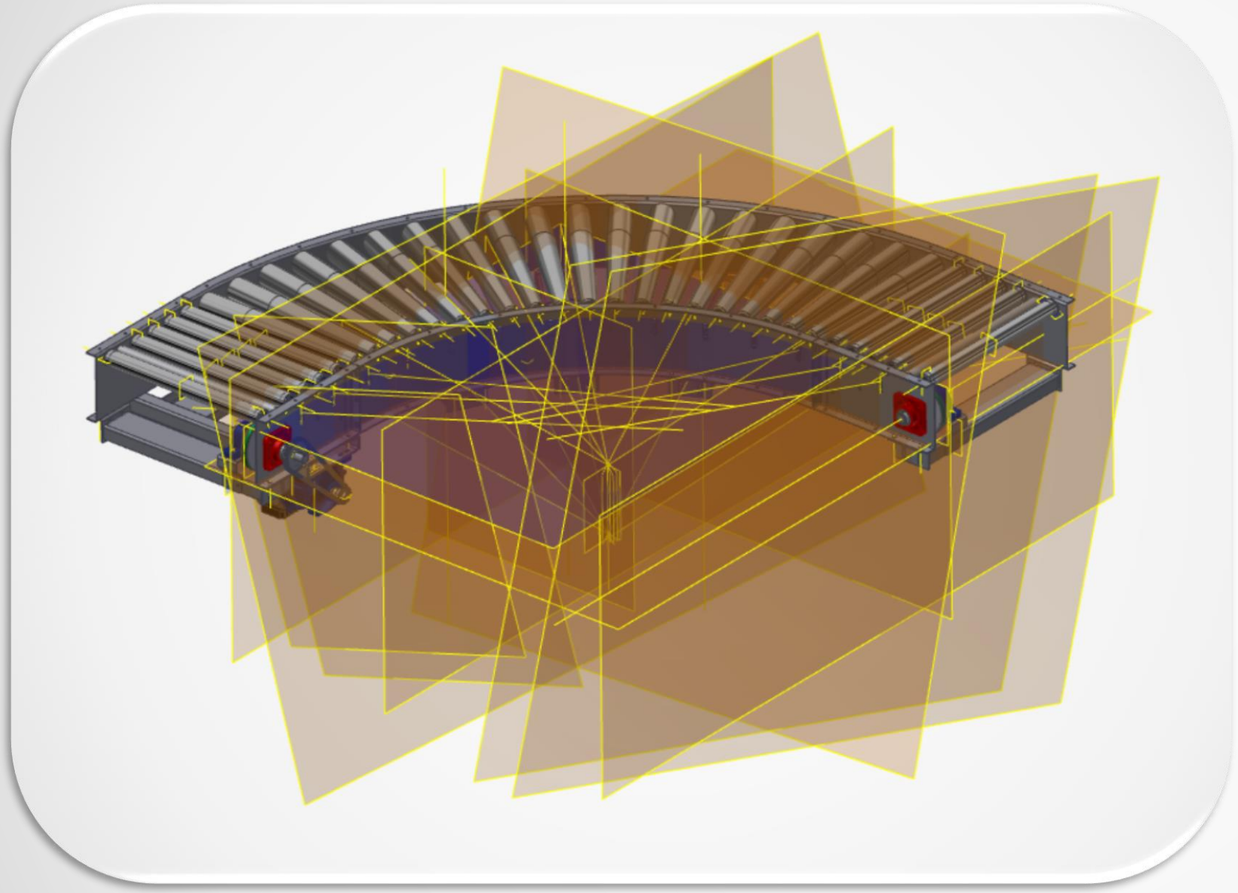

- Colors
- Parameter Values
- Feature Suppression
- iProperties
- Factory Descriptors
- If / Then

When Parameters are not Enough

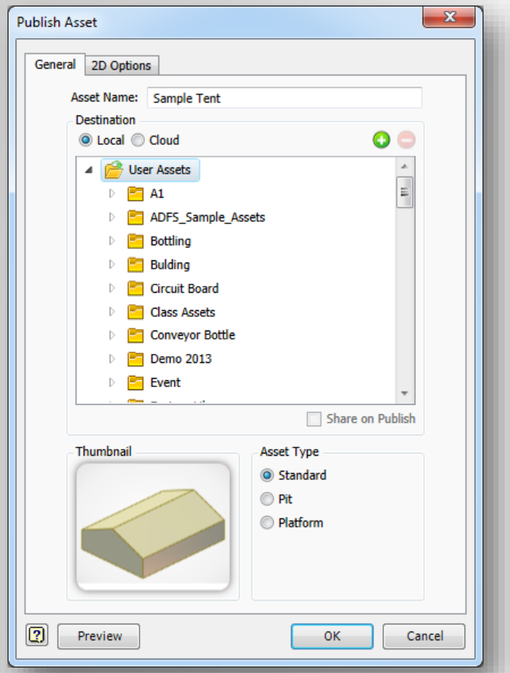
Warning – Keep it Simple

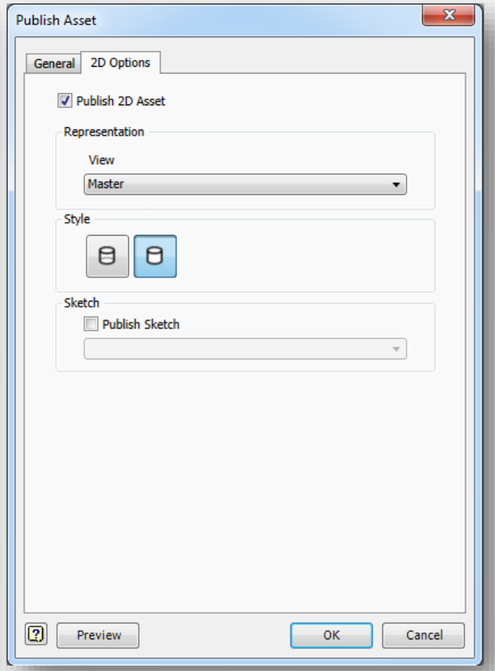
Best Practice – Turn Off All Work Features

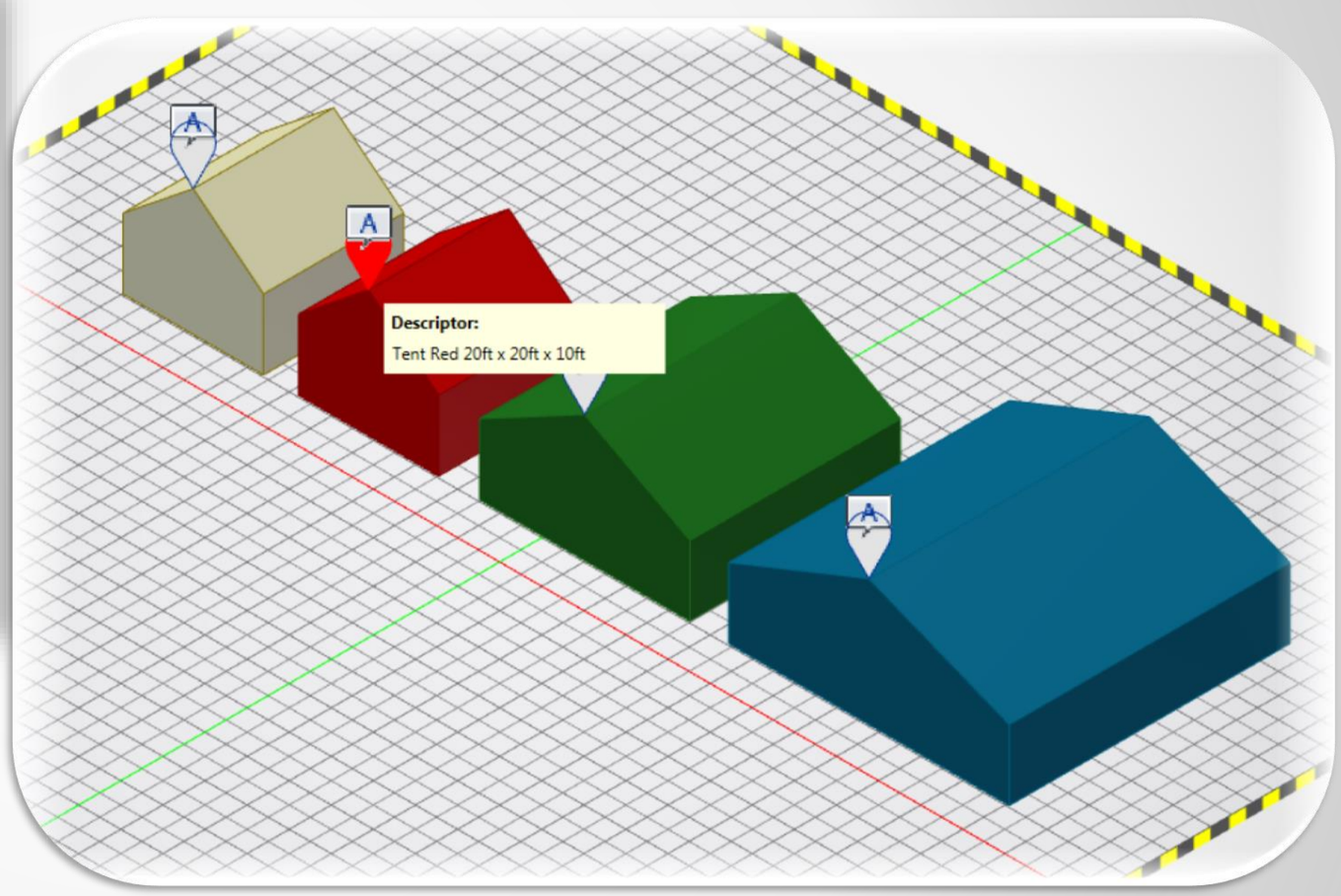


Assets are Library Parts and Cannot be Edited by Default

Publishing Assets – Initial Publishing / Local







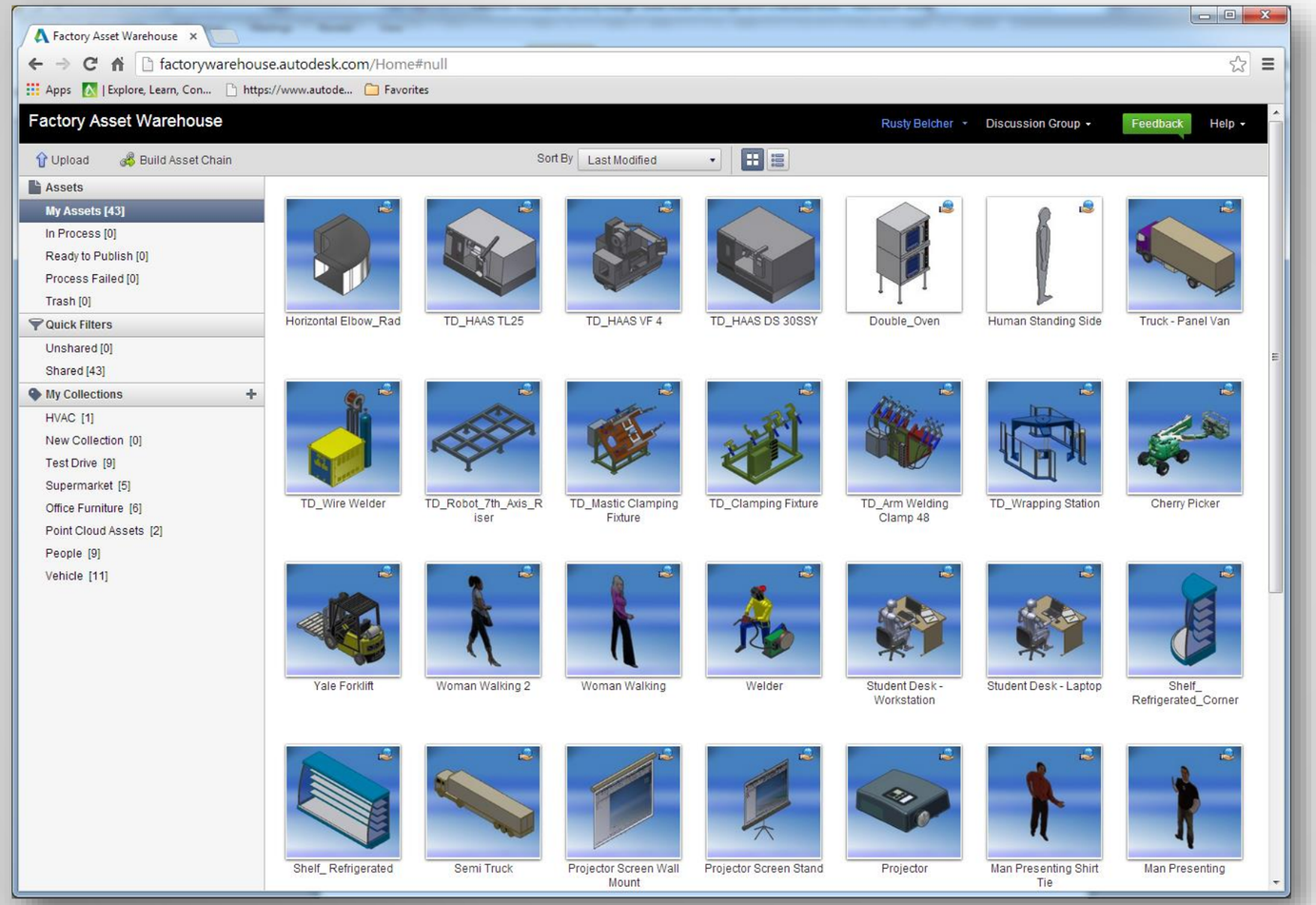
Test, Test, Test…

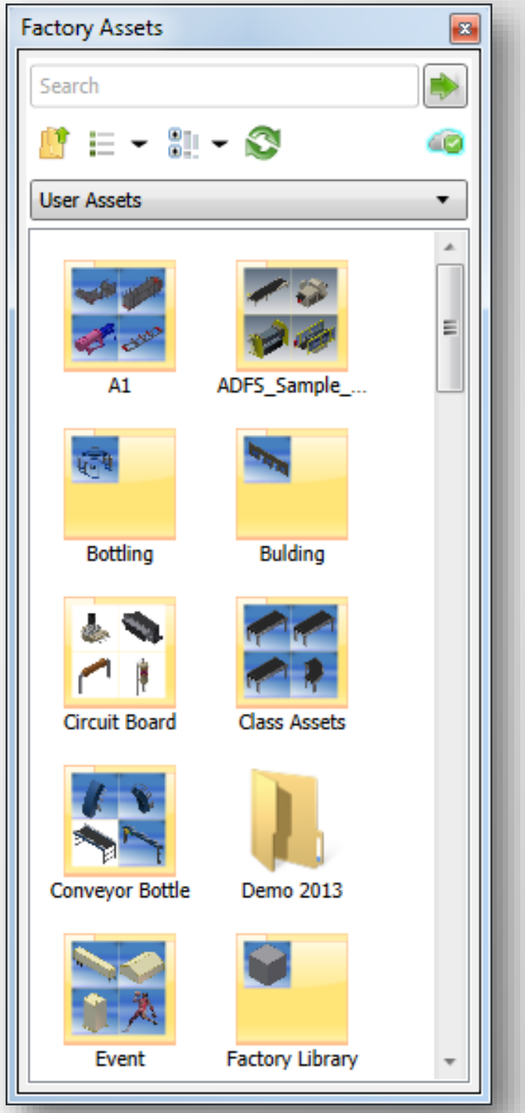
Publishing Assets – Initial Publishing / Testing Checklist

Checklist for Asset Testing	
☐	Parameter Functions – Model Update
☐	iProperty Settings – In Way of Mapped Values.
☐	Connector Functionality
☐	Connector Class Parameter Propagation.
☐	Parameters - Key
☐	Asset
☐	iLogic
☐	Variants FDS General Layout Functionality - Inventor
☐	FDS General Layout Functionality - AutoCAD
☐	Inventor Sync - AutoCAD Sync

Test some More…

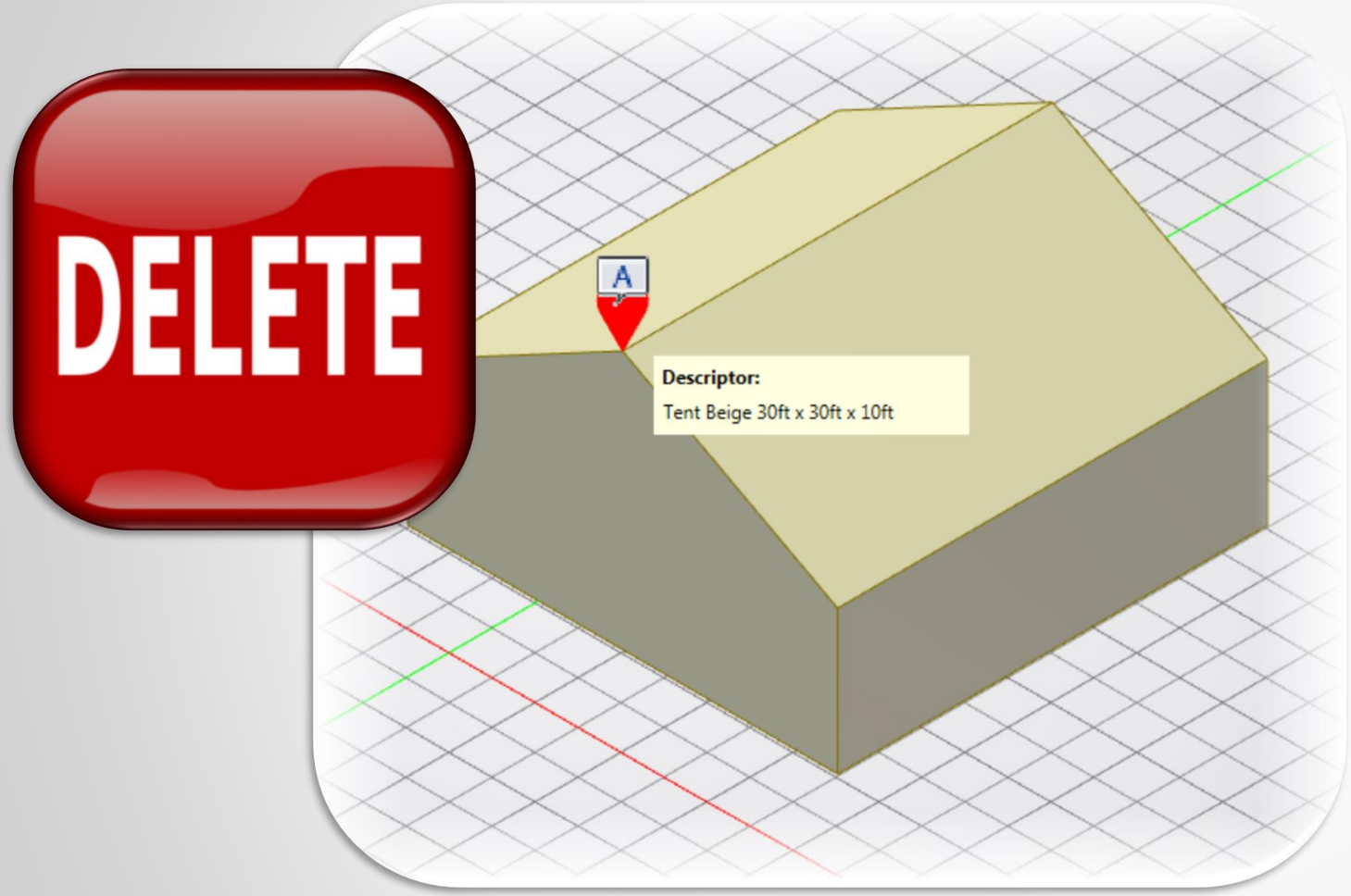
Publishing Assets – Publish to Cloud or Production





Share your Assets

Publishing Assets – Delete your Local Asset



Only use “Released” Assets for Production Work

Publishing Assets – Checklist

Develop your own Asset Publishing Checklist

Session Feedback

- Via the Survey Stations, email or mobile device
- AU 2014 passes given out each day!
- Best to do it right after the session
- Instructors see results in real-time

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