MFG197453-L

How Any Inventor User Can Benefit from Utilizing the Factory Design Utilities

Rusty Belcher

Application Expert – IMAGINiT Technologies

#FDU4Everything

About the speaker

Rusty Belcher – IMAGINiT Technologies

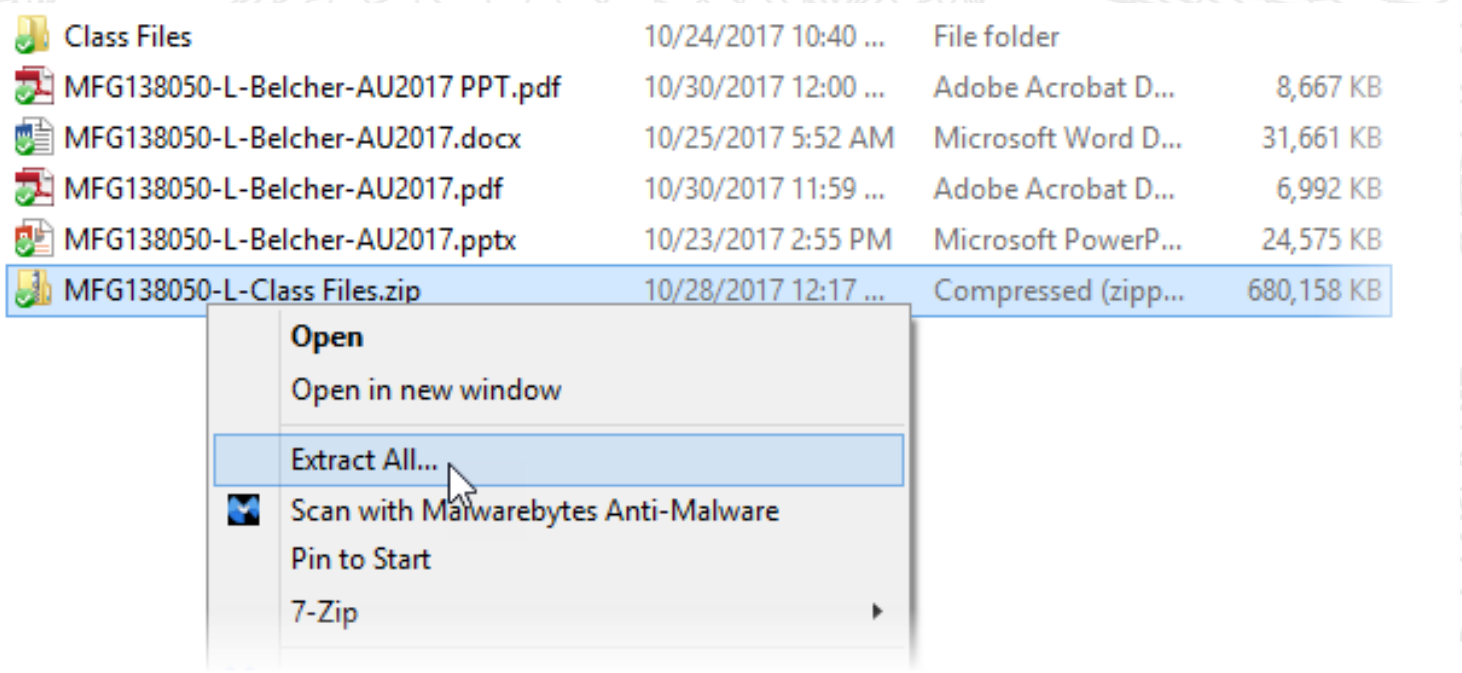
Rusty Belcher is a manufacturing application expert working with IMAGINiT Technologies. Rusty provides implementation, training, and support services at every level for all Autodesk, Inc., manufacturing products. His specialty involves the integration of 3D design practices into manufacturing production environments. He is an instructor and mentor, and IMAGINiT regularly receives outstanding reviews of his impact to their organization. Belcher started his career as a structural steel fitter at Newport News Shipbuilding. He is a graduate of the Newport News Shipbuilding Apprentice School, and he worked in the shipyard's Mold Loft Engineering Division. Over the past several years Belcher has worked directly with Autodesk to develop and author the current Factory Design Suite software training courseware, and he has also developed and recorded many of the tips and tutorial videos available on the Factory Design Suite software's YouTube channel.

Key Learning Objectives

- Class Setup – (15 min)
- Discover the broader uses of Factory Design Utilities
- Discover why other industries would consider Utilizing the Factory Design Utilities
- Identify designs that could utilize Factory Design Utilities, other than factories
- Investigate asset publishing for layout design

Class Setup – (15 Min)

Extract Dataset In Place



Class Setup

Open Inventor from the Software Folder

Class Setup

Create a Project File

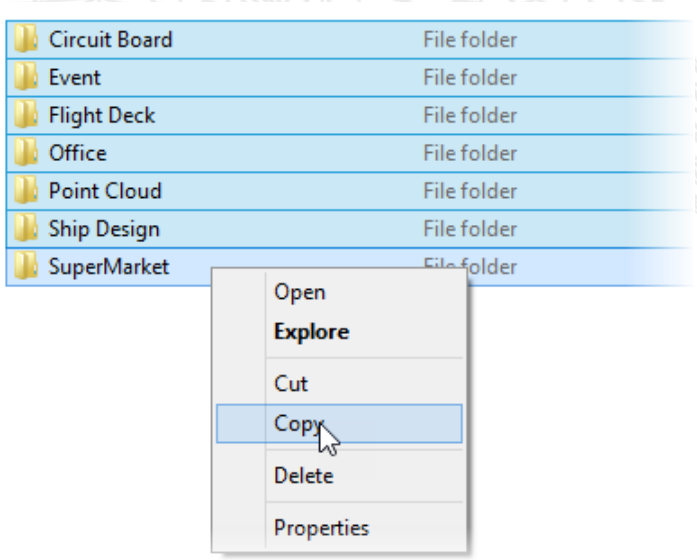
Projects – New / Create New Single User Project - Next
Name - FDUAU
Workspace - Browse – Datasets / Rusty Belcher /MFG197453-L-Class Files
OK
Finish

Class Setup

Copy Assets

On Computer Navigate to…

Dataset… Class Files / FDU Hands On / Copy All Folders

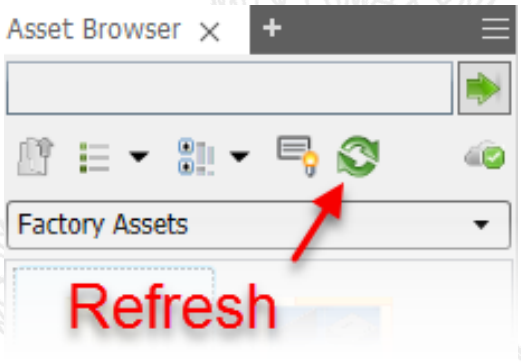


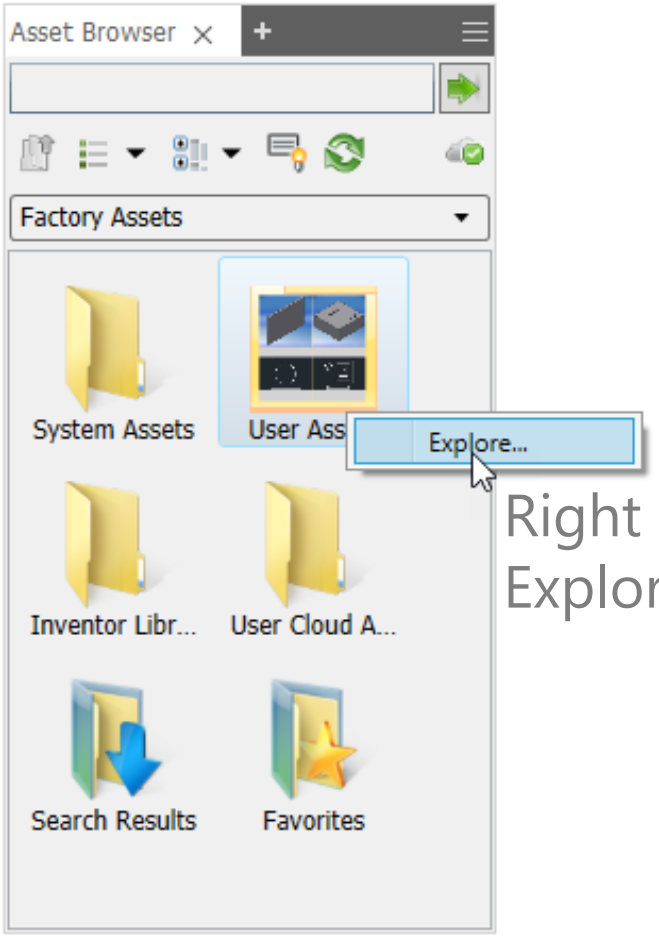
Class Setup

Paste Assets

In Inventor…
Start New Layout
Activate the Asset Browser
Right Click User Assets / Explore
Paste

Click Refresh



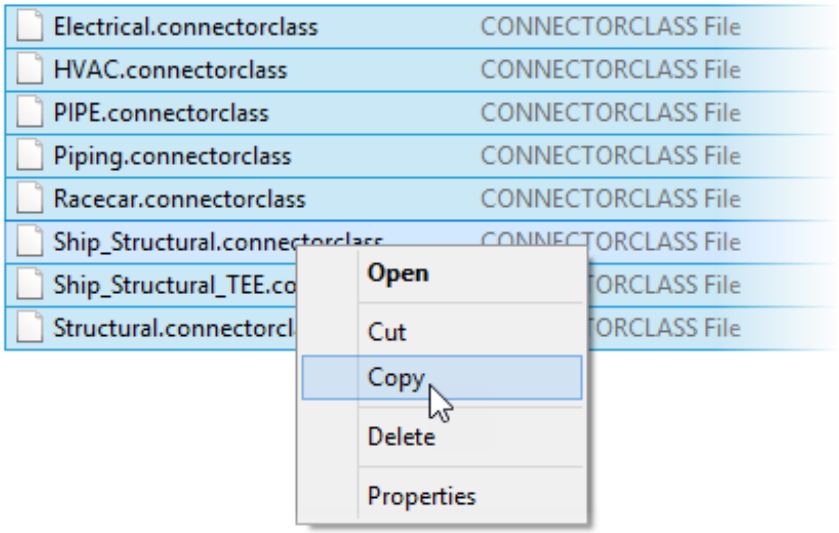


Right Click Explore…

Class Setup

Copy Connector Classes

On Computer Navigate to…
Dataset… Class Files / Connector Classes/ Copy All

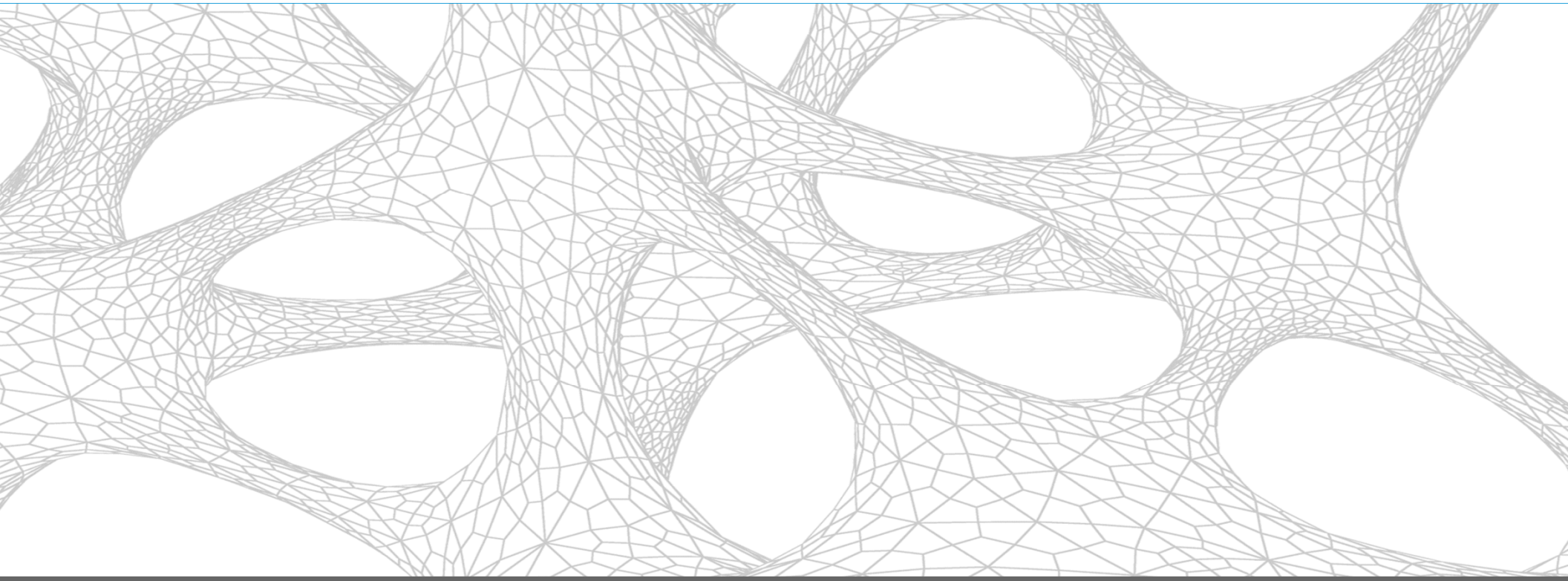


Class Setup

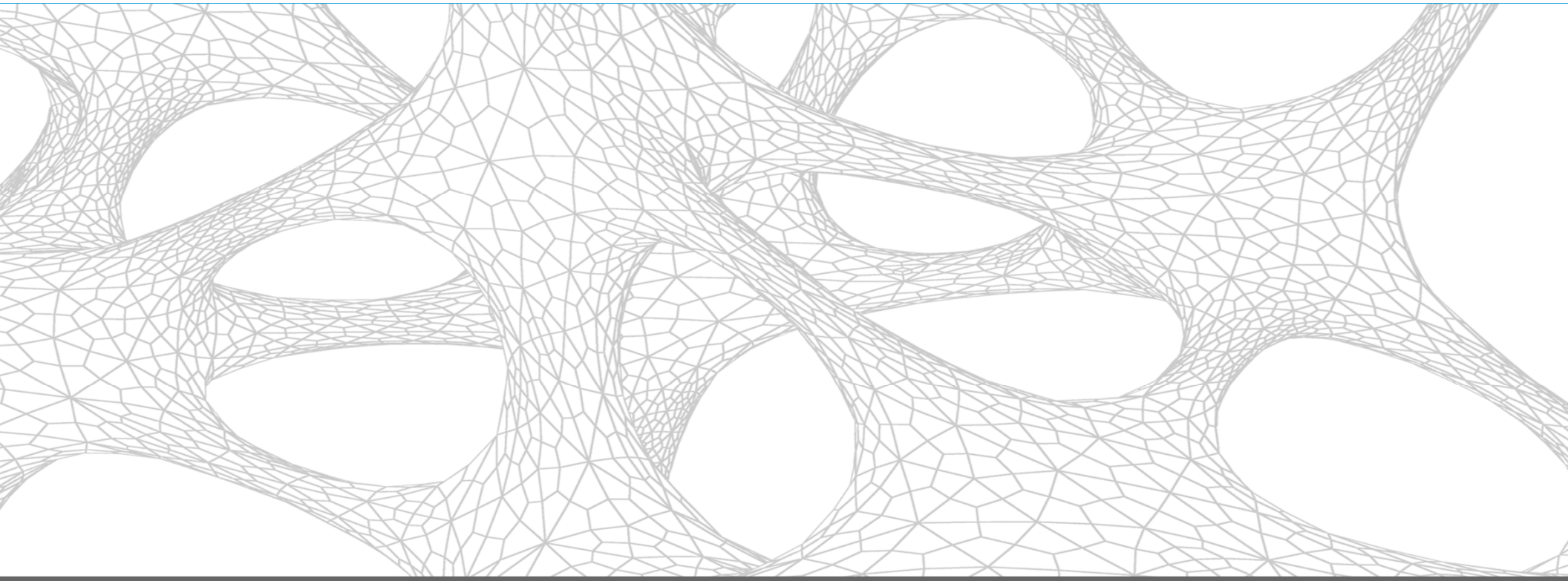
Paste Connector Classes

Navigate to…
C:\ProgramData\Autodesk\Factory Design(version)\FactoryLibrary

Paste



The Autodesk Factory Design Utilities can be used on many different designs other than Factories.
Let the Word “Factory” Get in the Way!



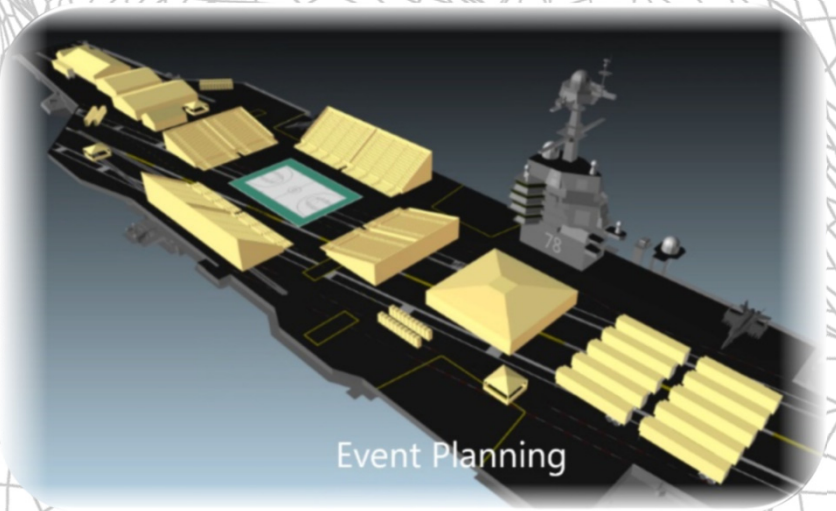
Section 1

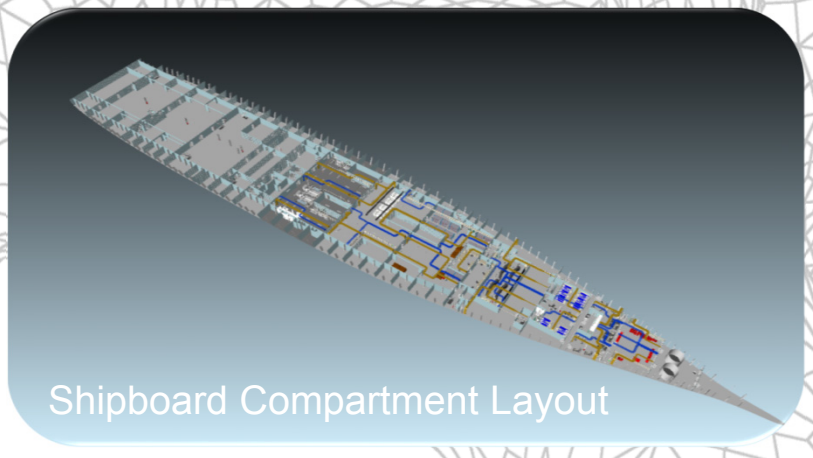
The Broader Uses of the Factory Design Utilities.

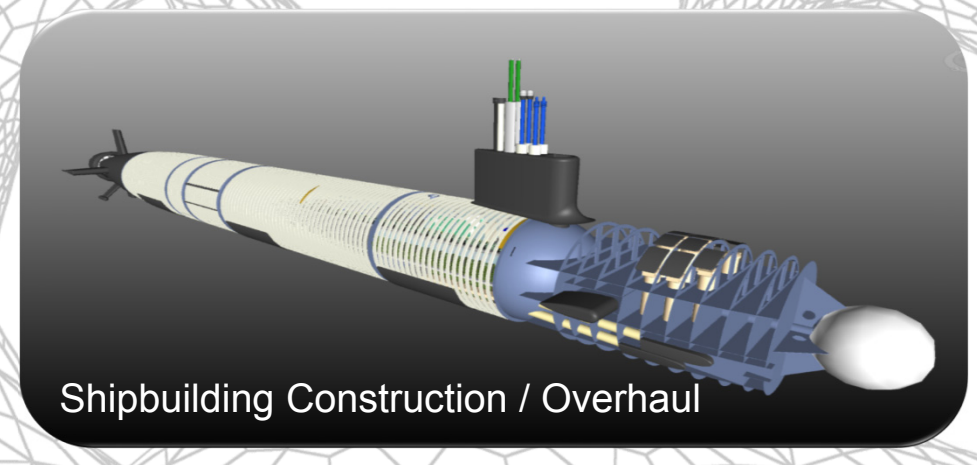
Back Story…

A Year in the Life - FDU

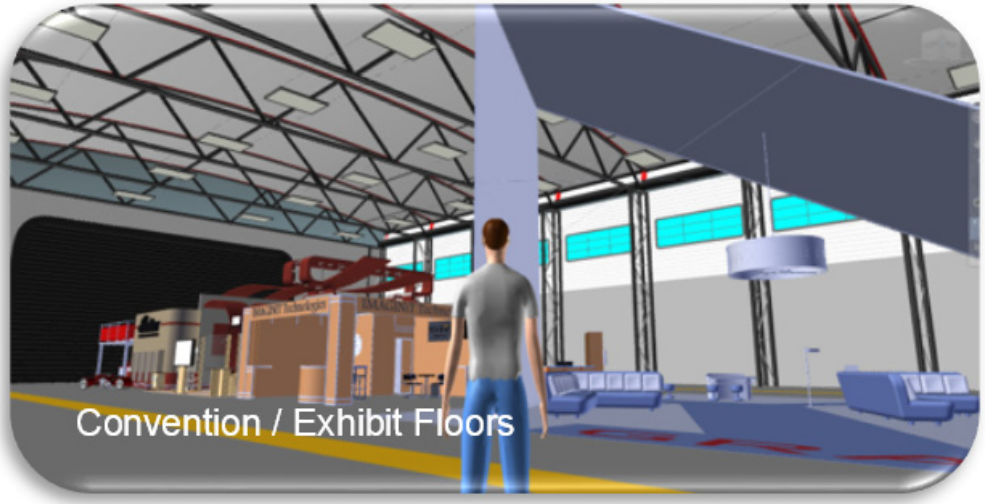
A Year in the Life - FDU

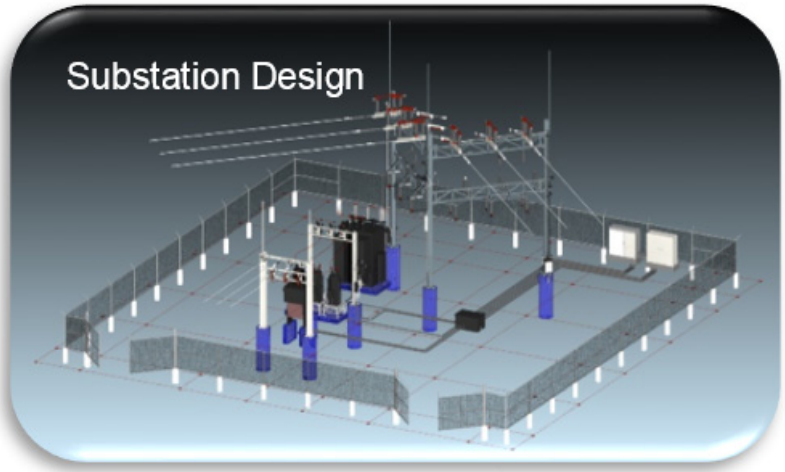


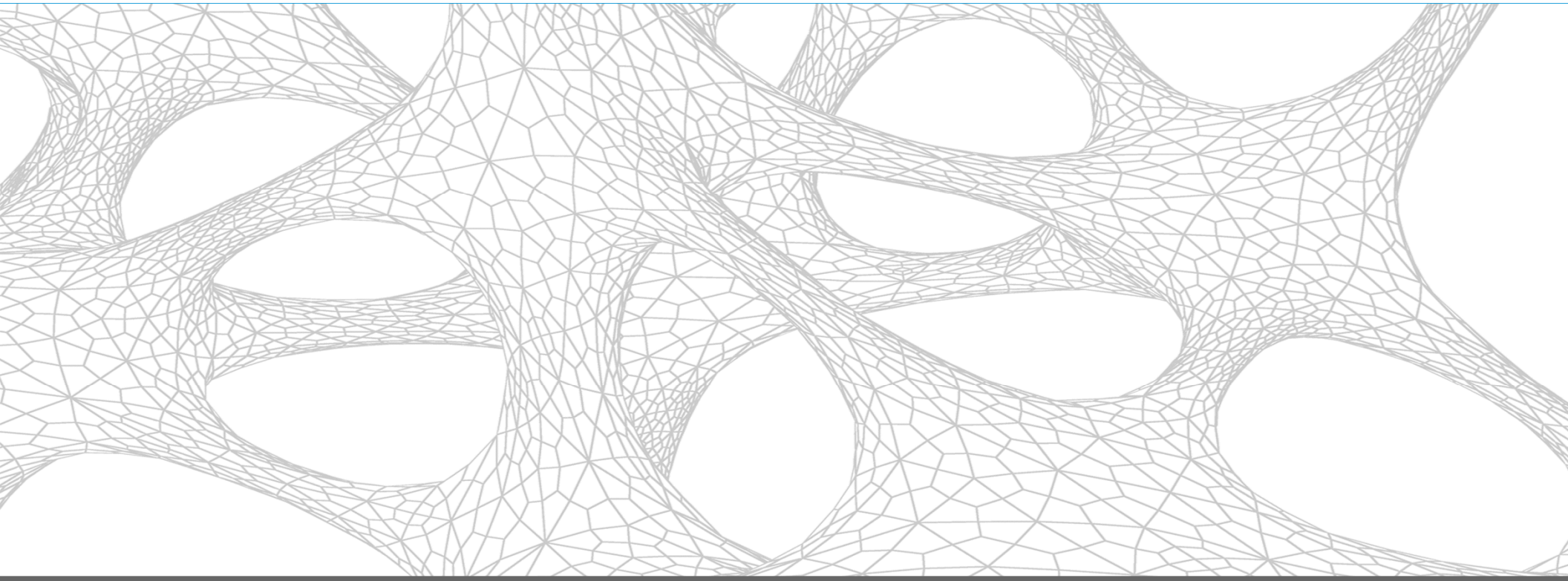




A Year in the Life - FDU



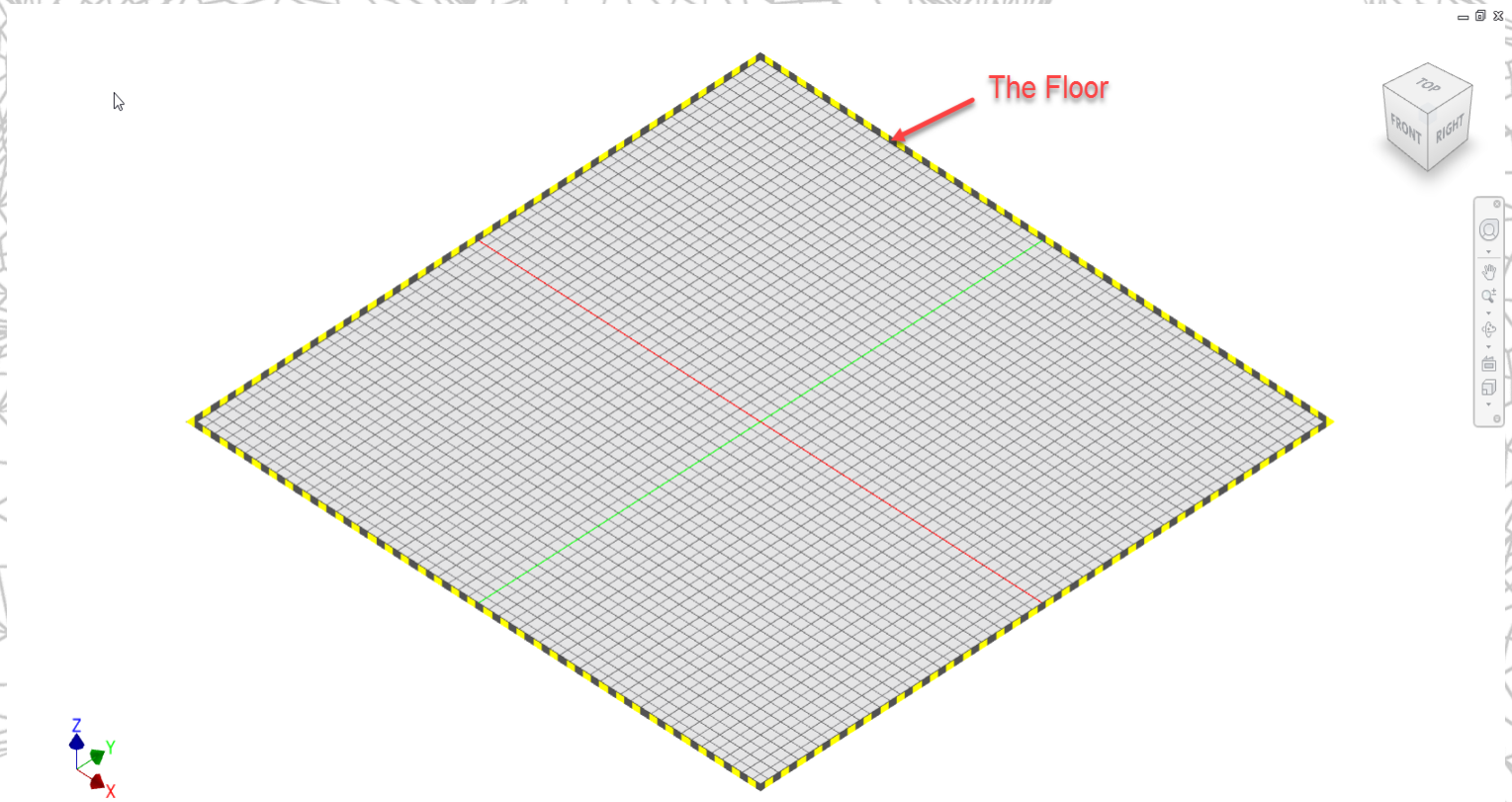




Section 2

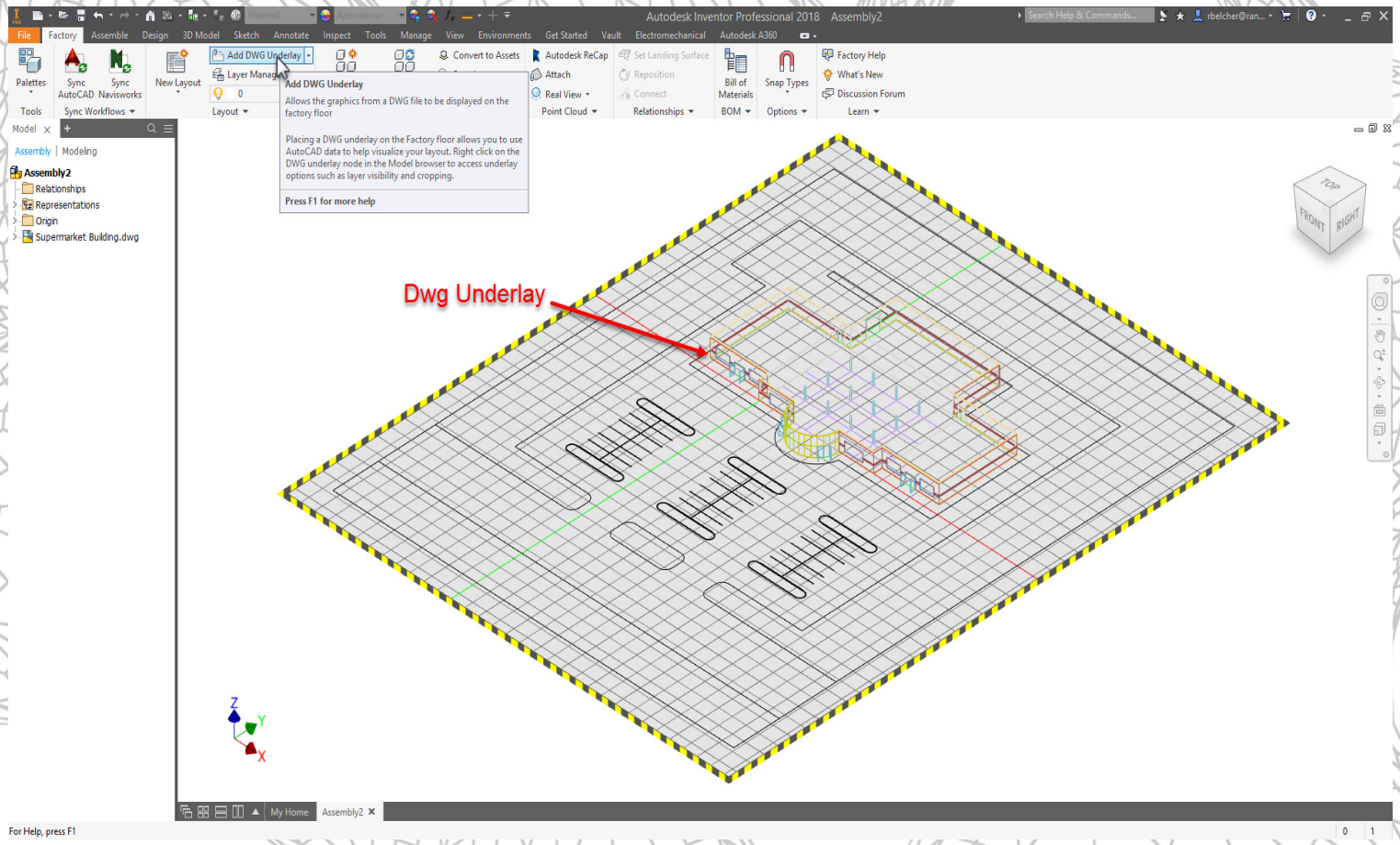
Discover why other industries would consider Utilizing the Factory Design Utilities

The Floor



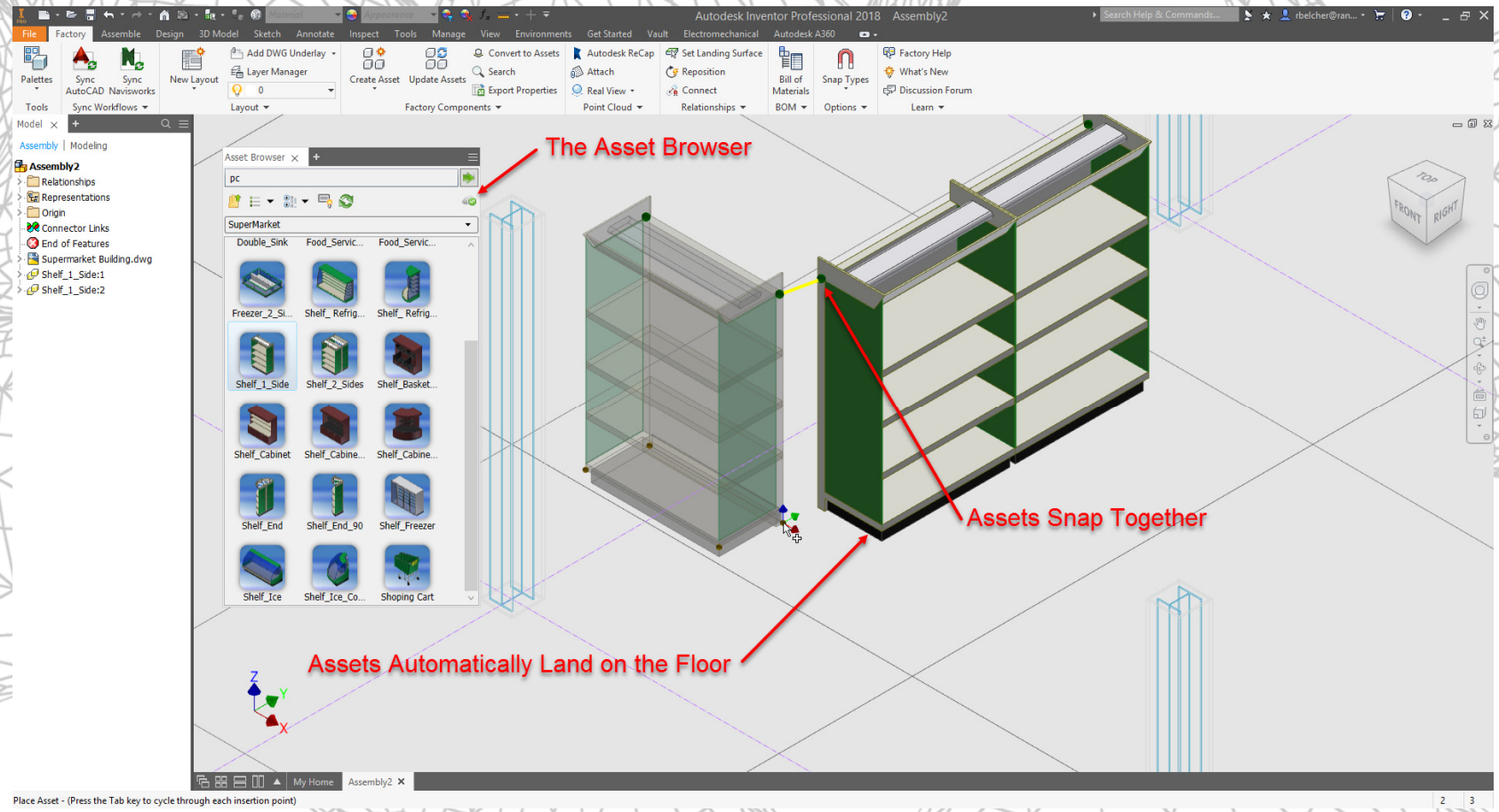
A Ground Plane or Deck is Common in Many Layout Designs

Working with AutoCAD – DWG Underlay



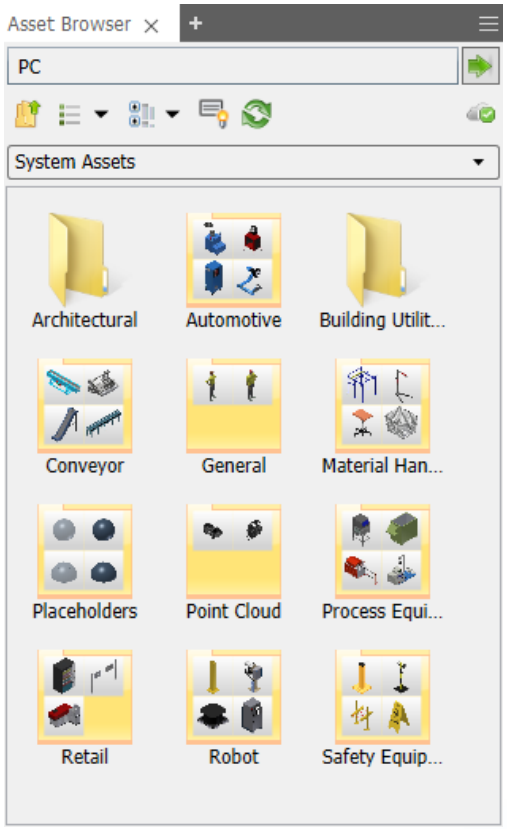
2D and 3D Working Together

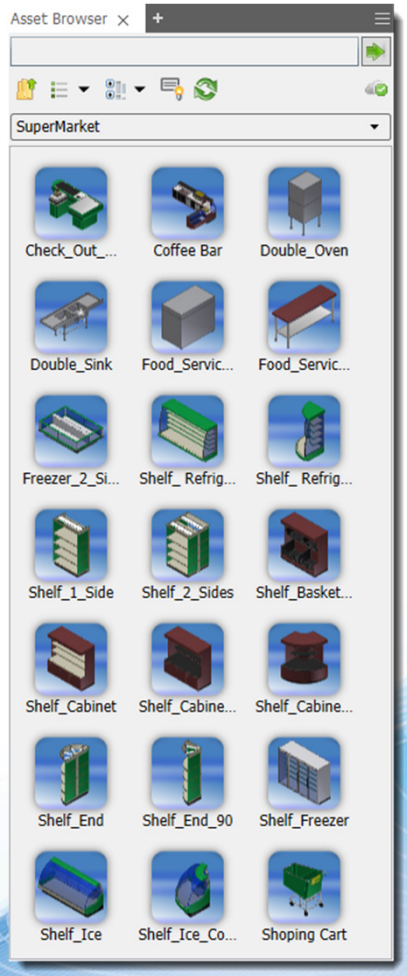
Asset Based Design – Lego CAD

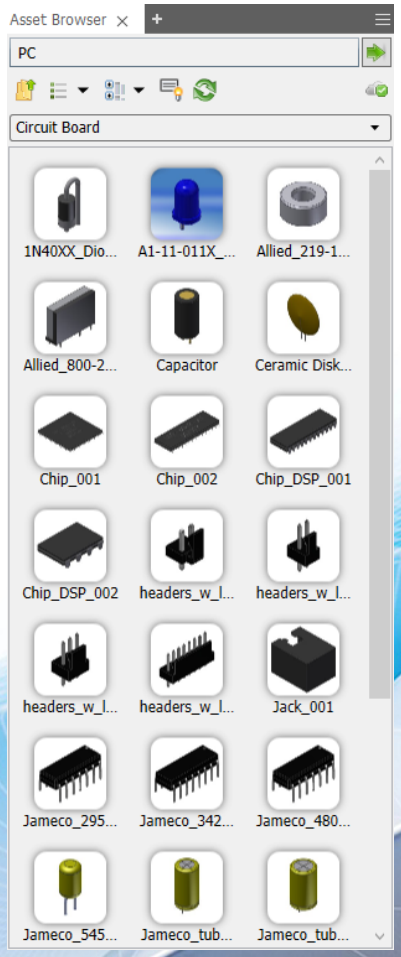


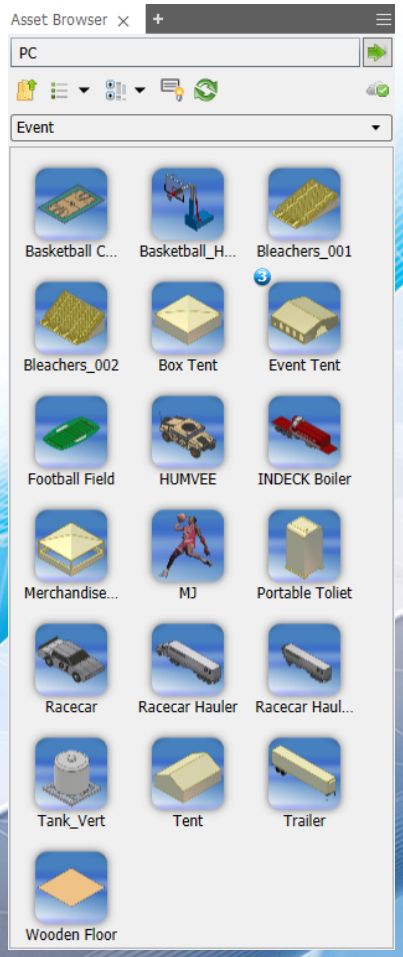
Assets Snap Together like Toy Bricks.

Asset Browser / Custom Assets



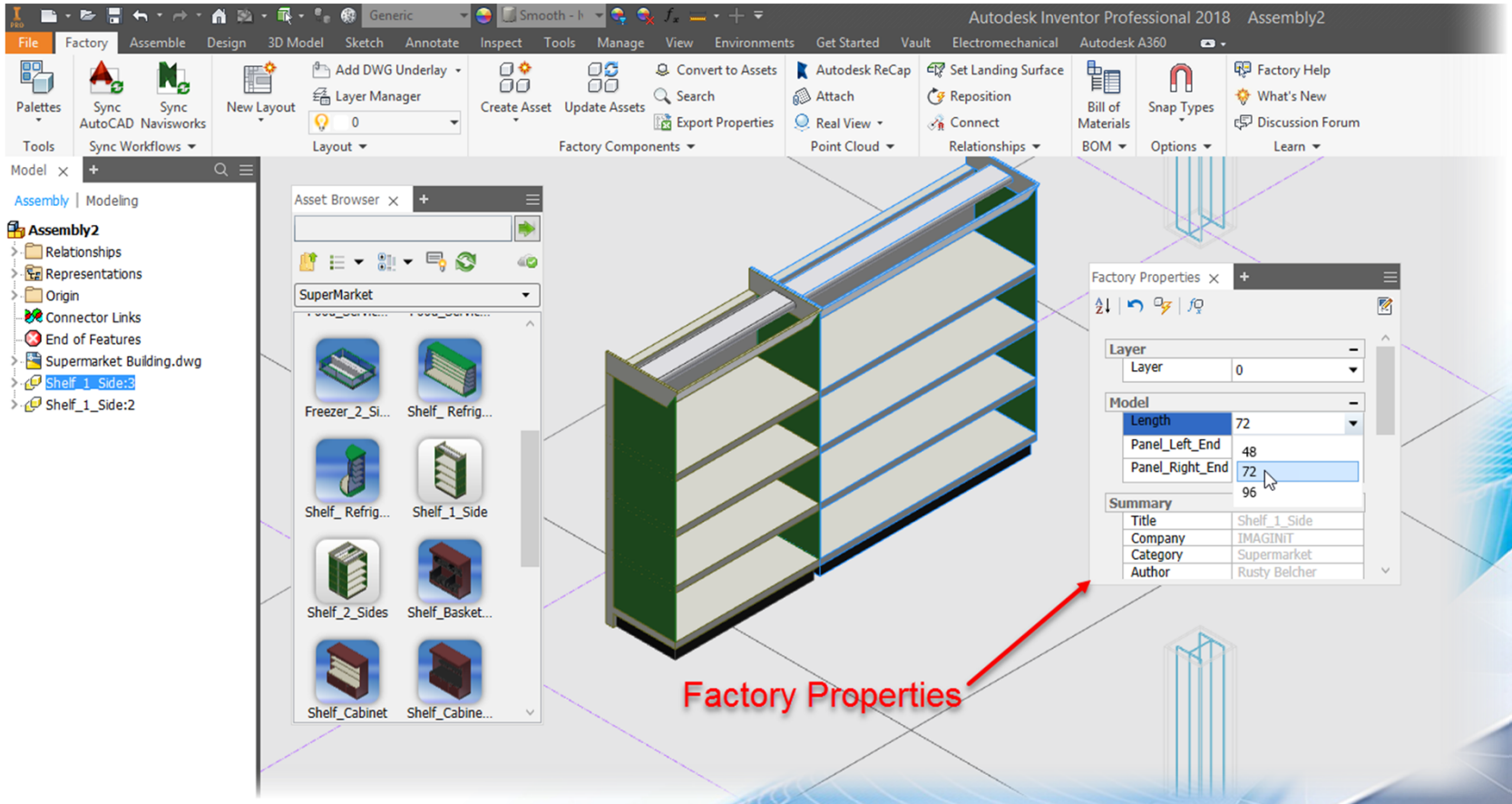






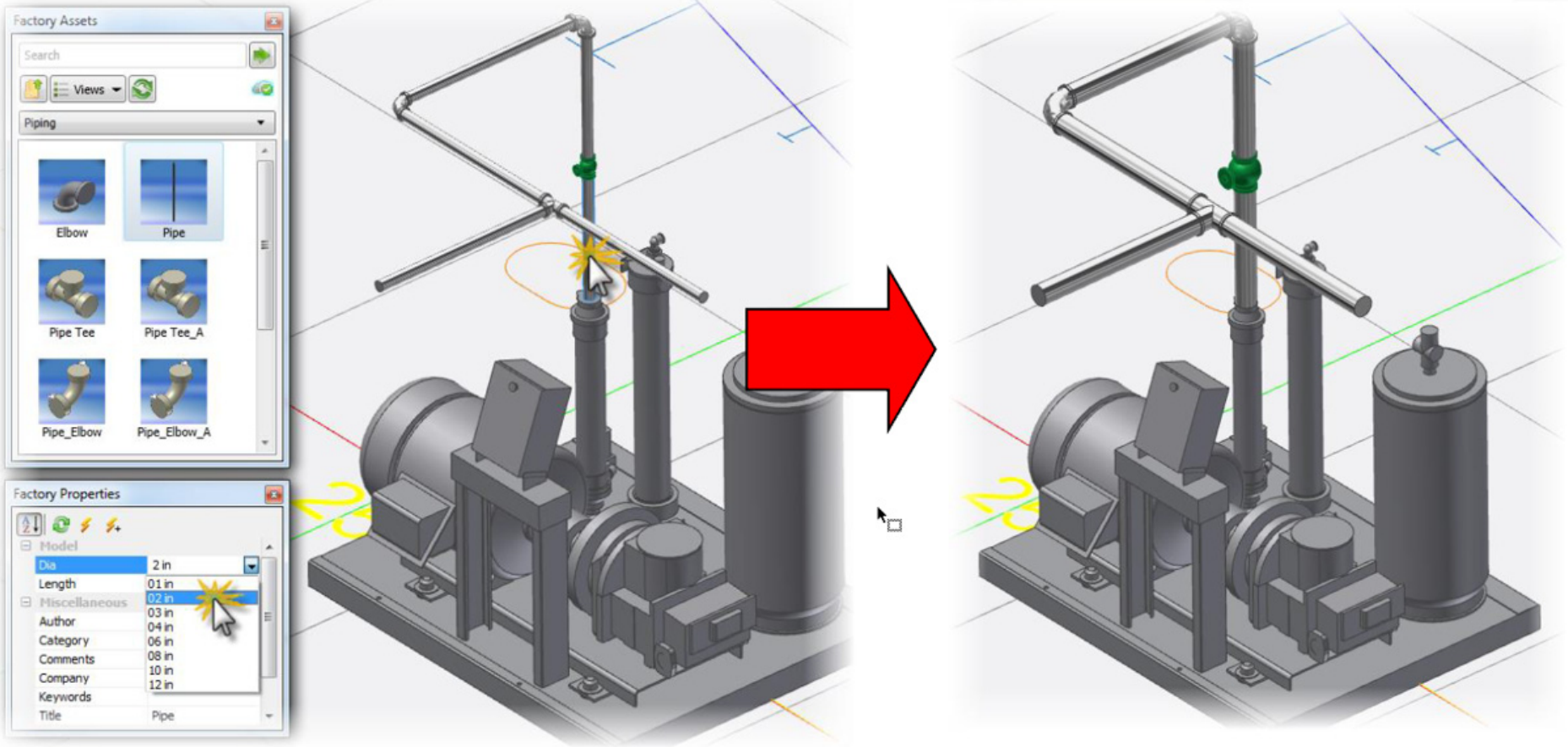
Easy Access to Your Assets

Asset Parameters



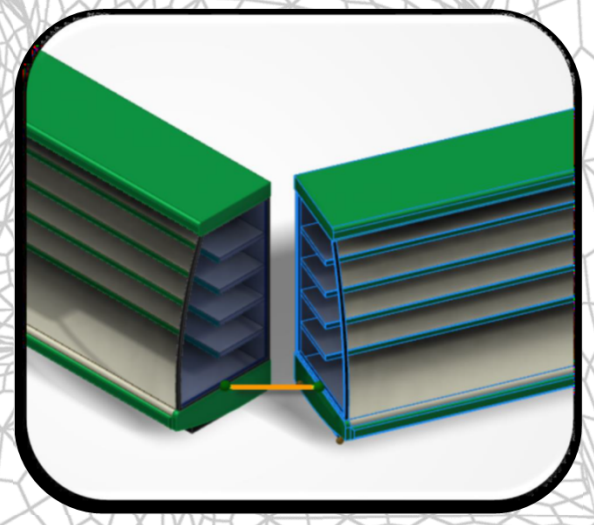
The Asset Browser and Properties Pallet Provide Easy Access to Asset Parameters

Asset Parameter Propagation

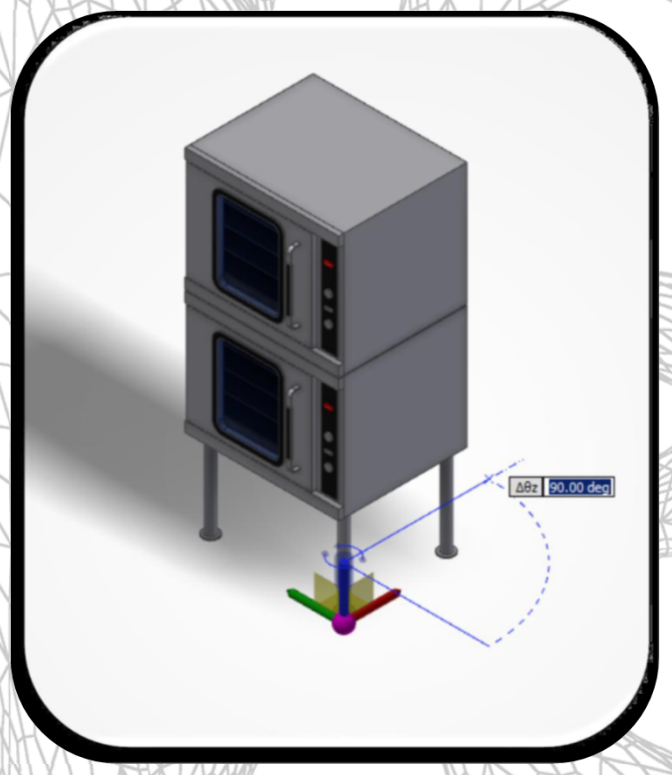


Intelligent Assets Share Parameter Values

Ease of Use



Connector Points

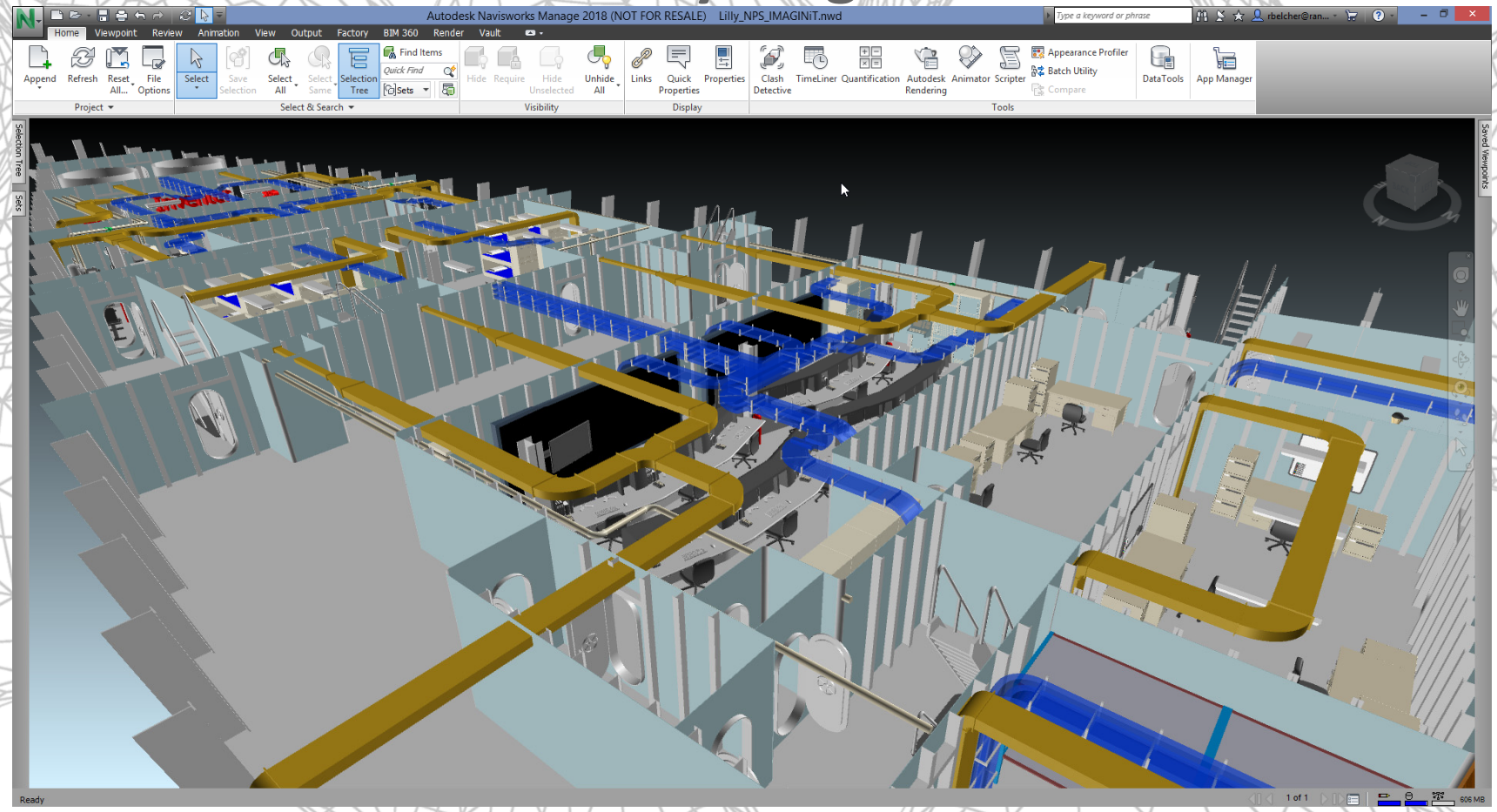


Reposition

Insert Model

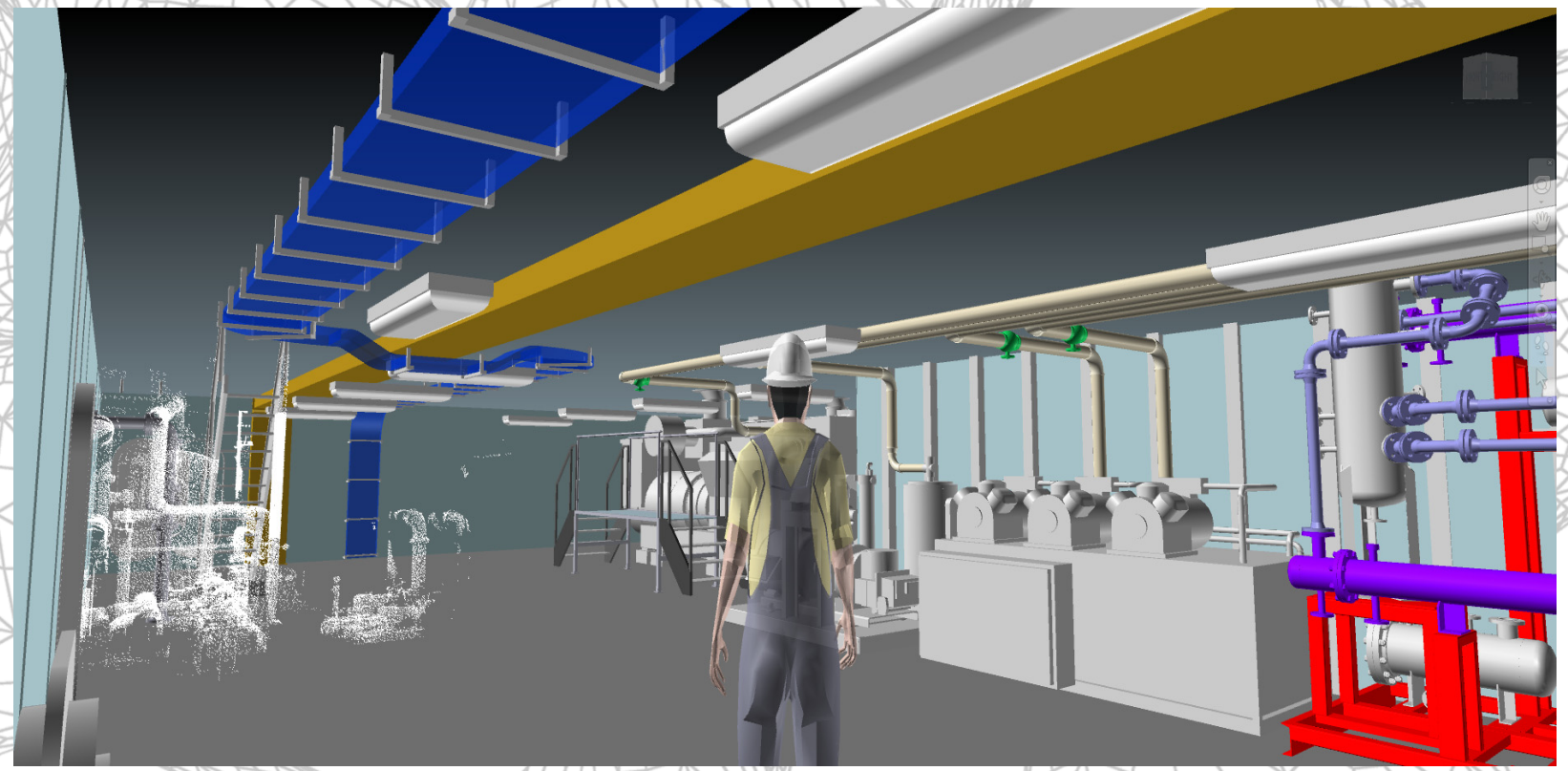
Anyone can Use the Factory Design Utilities

Workflows for Extremely Large Assemblies

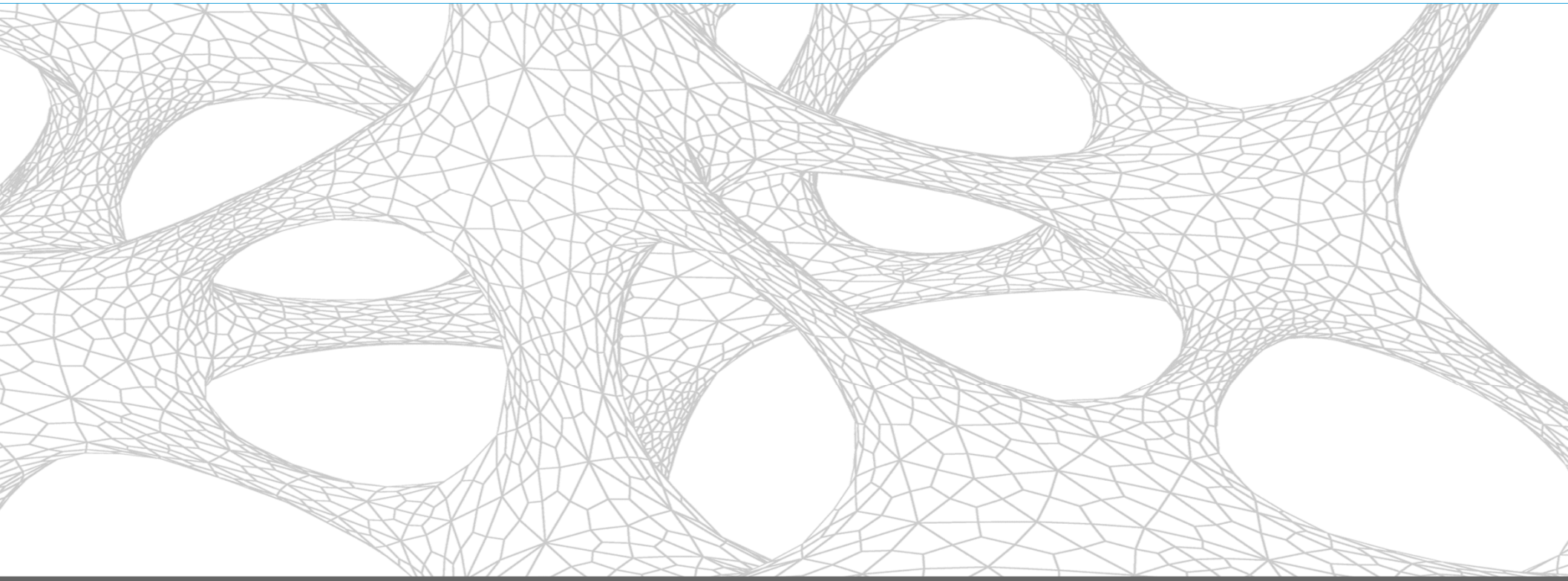


No Limit to the Size of Your Digital Mockup - Navisworks

Ease of Use – Veteran Tradesman



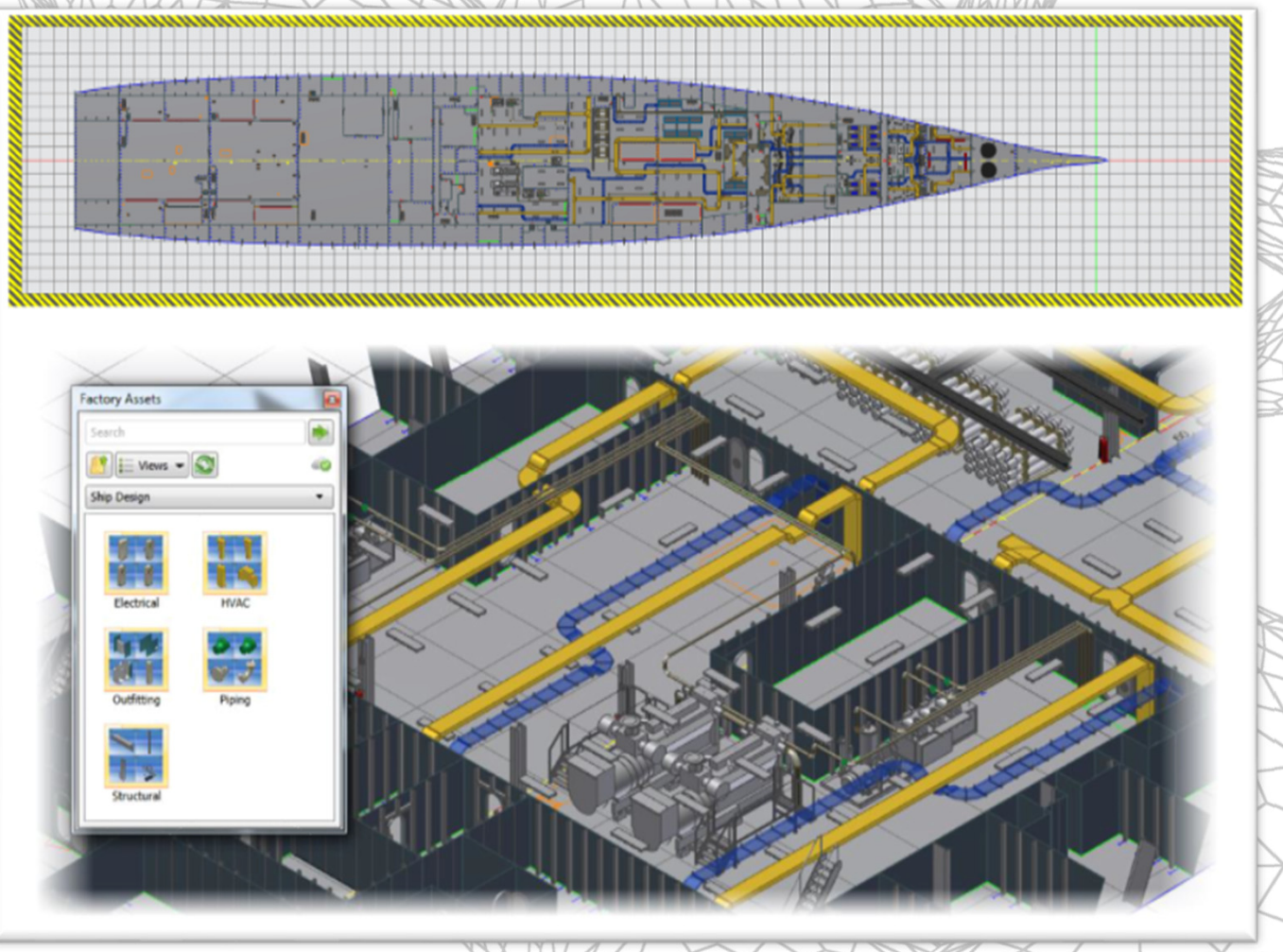
“It is often easier to teach a veteran tradesman how to use a computer than to train a college graduate the intricacies of your manufacturing rules and processes.”



Section 3

Identify designs that could utilize Factory Design Utilities, other than factories

Shipbuilding Compartment Layout



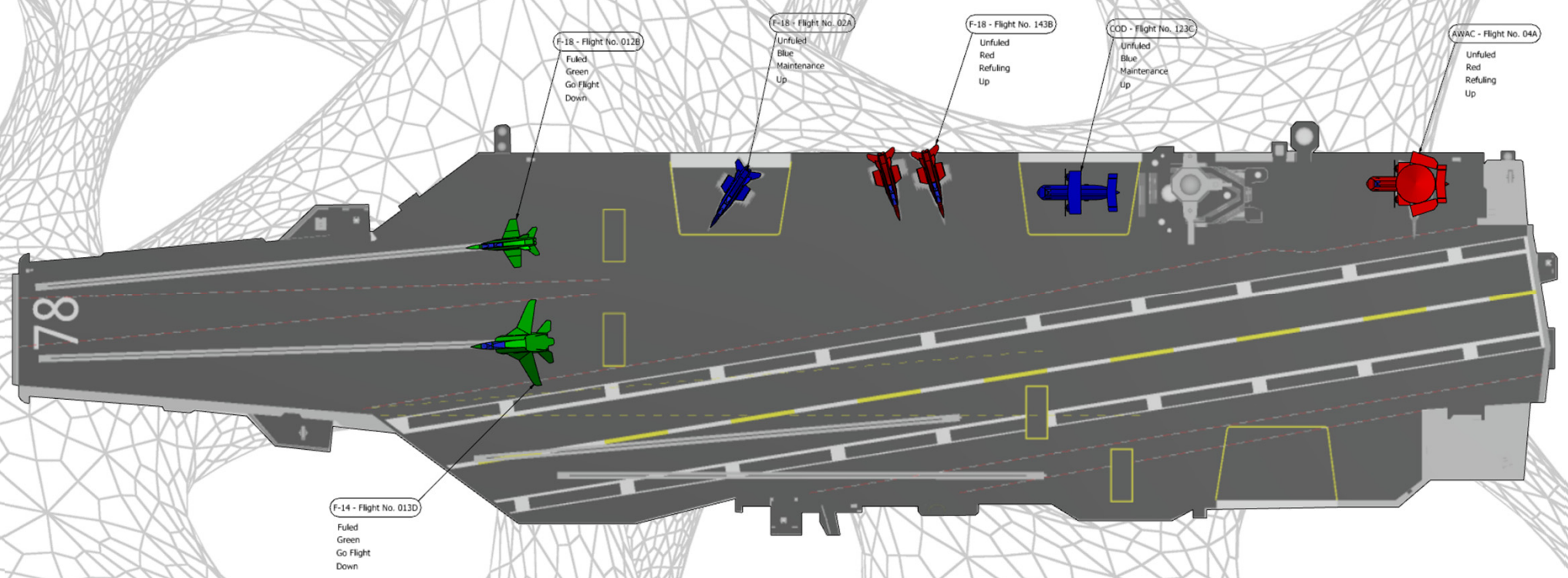
- Asset Based Design
- Parameter Propagation
- Extremely Large Assemblies

Supermarket / Retail Space Layout

- Asset Based Design
- Parameter Propagation
- Multiple “What If” Scenarios
- Putting Your Assets in Context of a Customer’s Facility

Asset Layout and Status - Management

Asset Layout and Status - Management

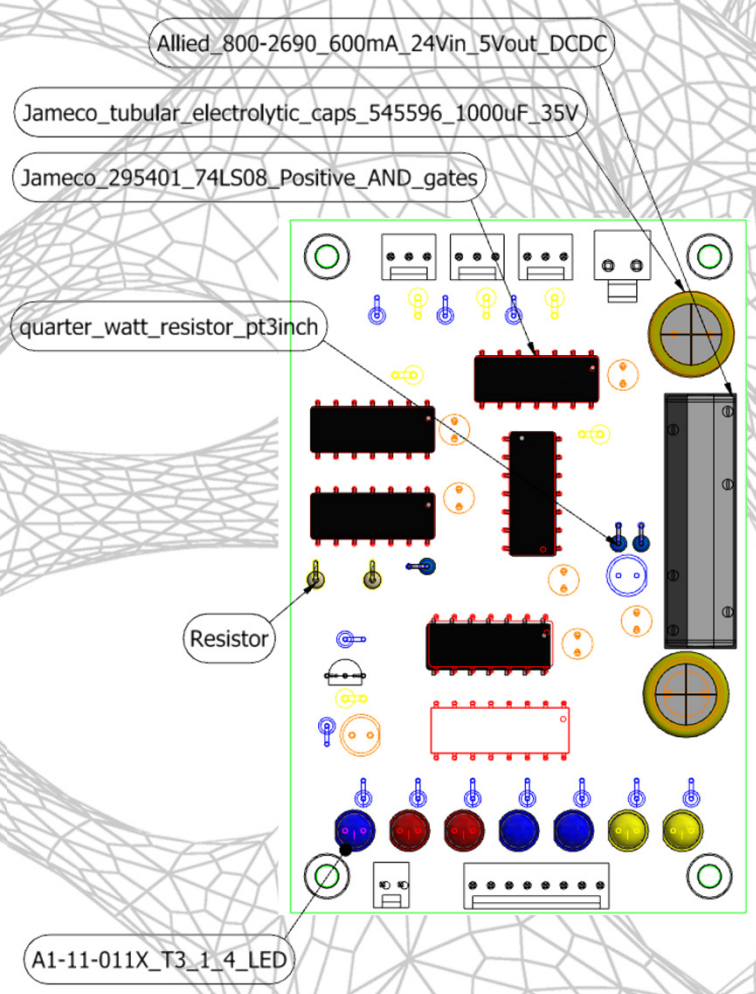


- Asset Status
- Ease of Use
- Multiple “What If” Scenarios

Circuit Board Layout

- Asset Based Design
- Multiple “What If” Scenarios
- Putting Your Assets in Context of a Customer’s Layout
- Visualization
- Concept Analysis
- Already Adopted by Autodesk

Circuit Board Layout



- Asset Based Design
- Multiple “What If” Scenarios
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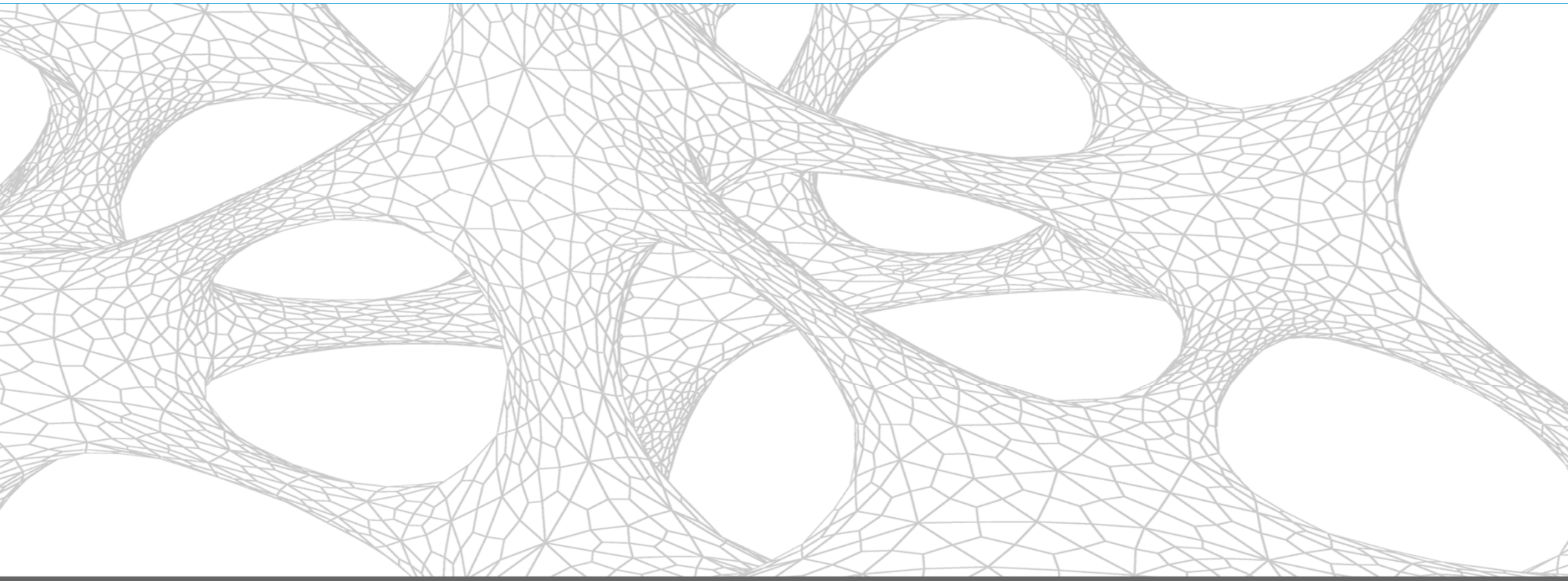
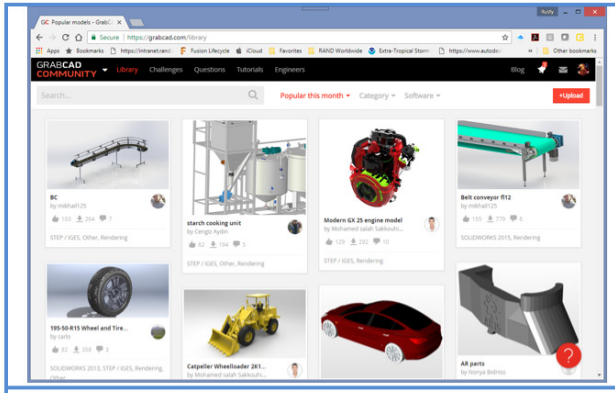


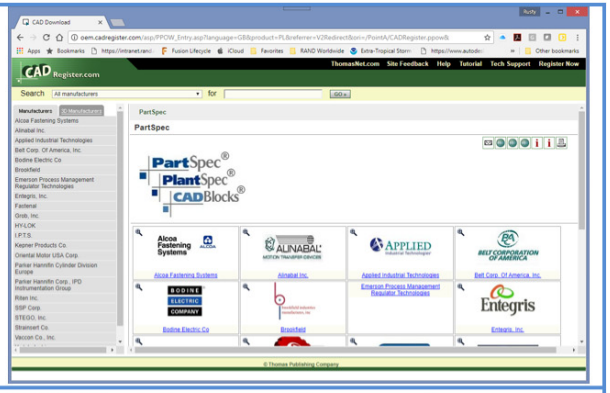
Section 4

Investigate asset publishing for layout design

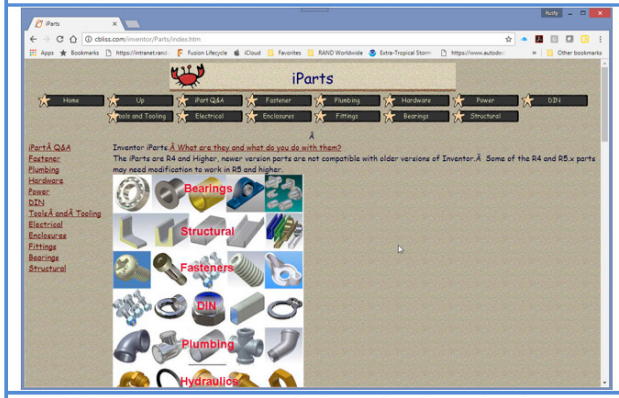
Asset Origins



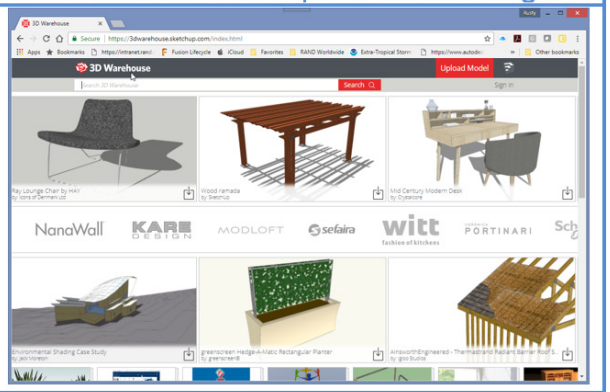
GRABCAD is a great place to download models from various CAD sources.



CAD Register.com allows you to access thousands of vendor specific CAD designs.



CBLISS.com is a great place to download Inventor centric parts and iParts. Please remember that you cannot create an asset from an iPart, but you can utilize it as the basis of an FDU asset.

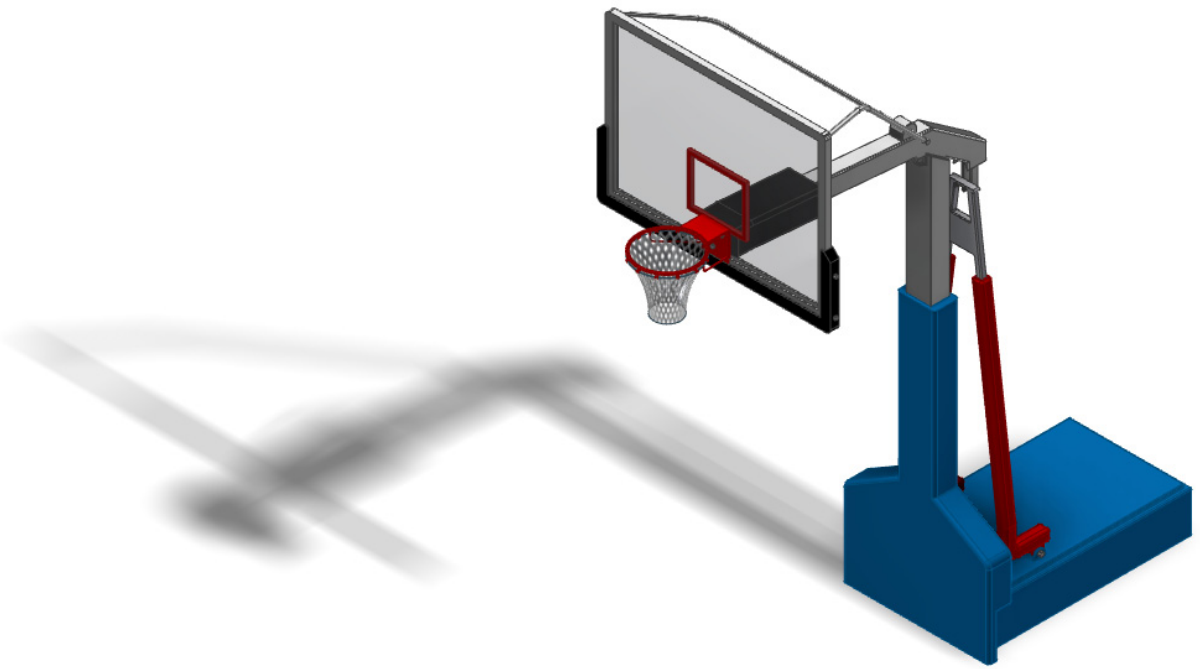


Trimble 3D Warehouse (formally Google 3D Warehouse) is a great place to download SketchUp files which can be used as assets after translation to Inventor or used as is in Navisworks.

Static Assets can be downloaded from anywhere.

Dynamic Assets must be modeled in Inventor.

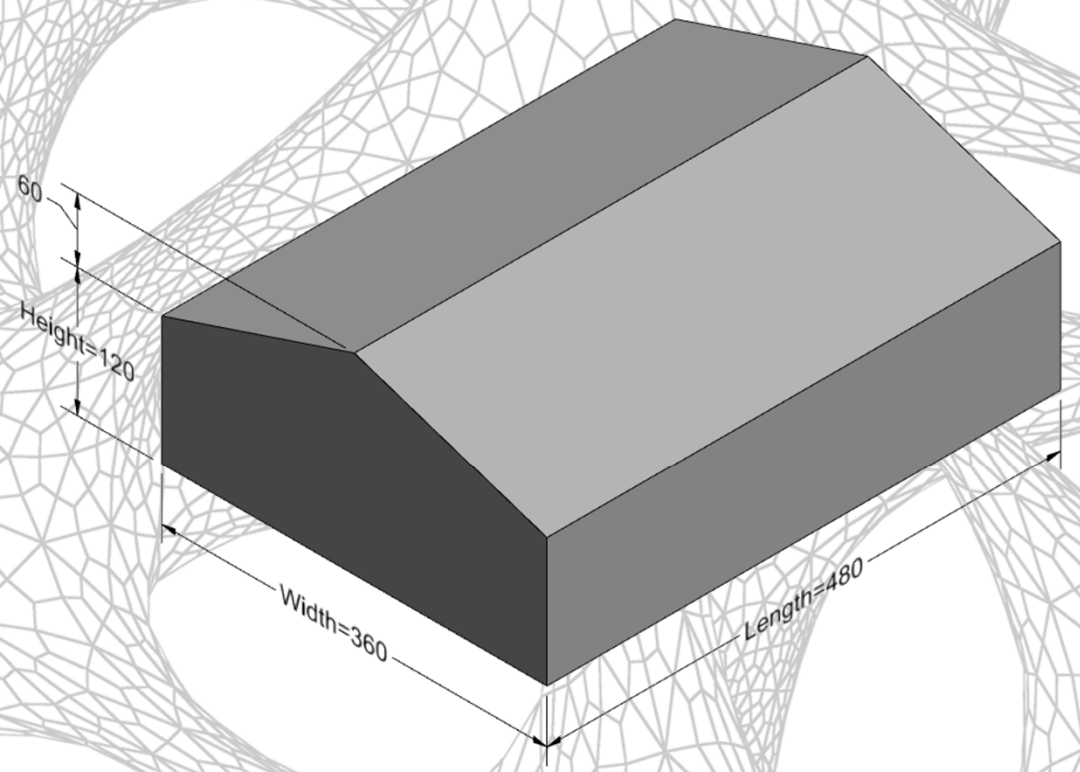
Asset Publishing



Static Assets like this Basketball Hoop can be downloaded from anywhere. In this case, the hoop was downloaded from GrabCAD.

Asset Publishing

Dynamic Assets like this Event Tent must be created in Inventor using standard Parametric Modeling Practices.



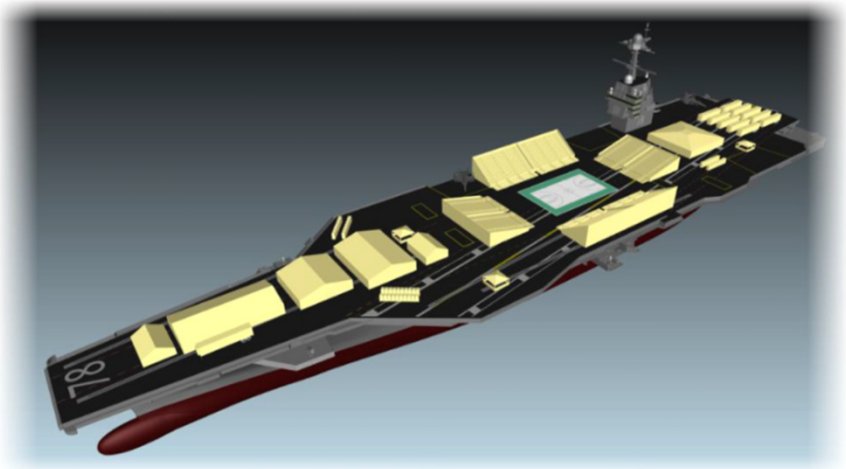
Dynamic Asset (Tent)
Source - Modeled in Inventor

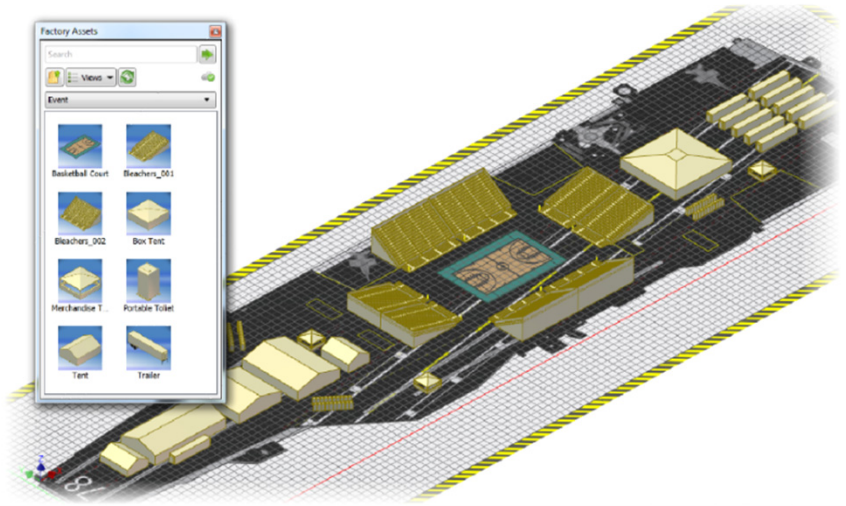
Asset Publishing Checklist

Checklist for Asset Publishing	
☐	Model Detail – Low
☐	Shrinkwrap if Necessary
☐	Multi-Body if Necessary
☐	Parameters - Named
☐	Parameters - Key
☐	Parameters - Exported
☐	Parameters – Multi-Value
☐	Parameters - Tested
☐	iProperties – Part Number
☐	iProperties – Description
☐	IProperties – Mapped Parameters
☐	Work Features for Publishing - On
☐	Landing Surface
☐	Insertion Point
☐	Define Connectors
☐	Connector Class Properties
☐	Asset Properties
☐	Asset Variants
☐	All Work Features Off
☐	Publish Local
☐	Test
☐	Modify to Suit Testing
☐	Publish Local - Final
☐	Publish to Cloud - Optional

There are many things to think about when Publishing Assets. Develop a Checklist and make sure you get it right the first time.

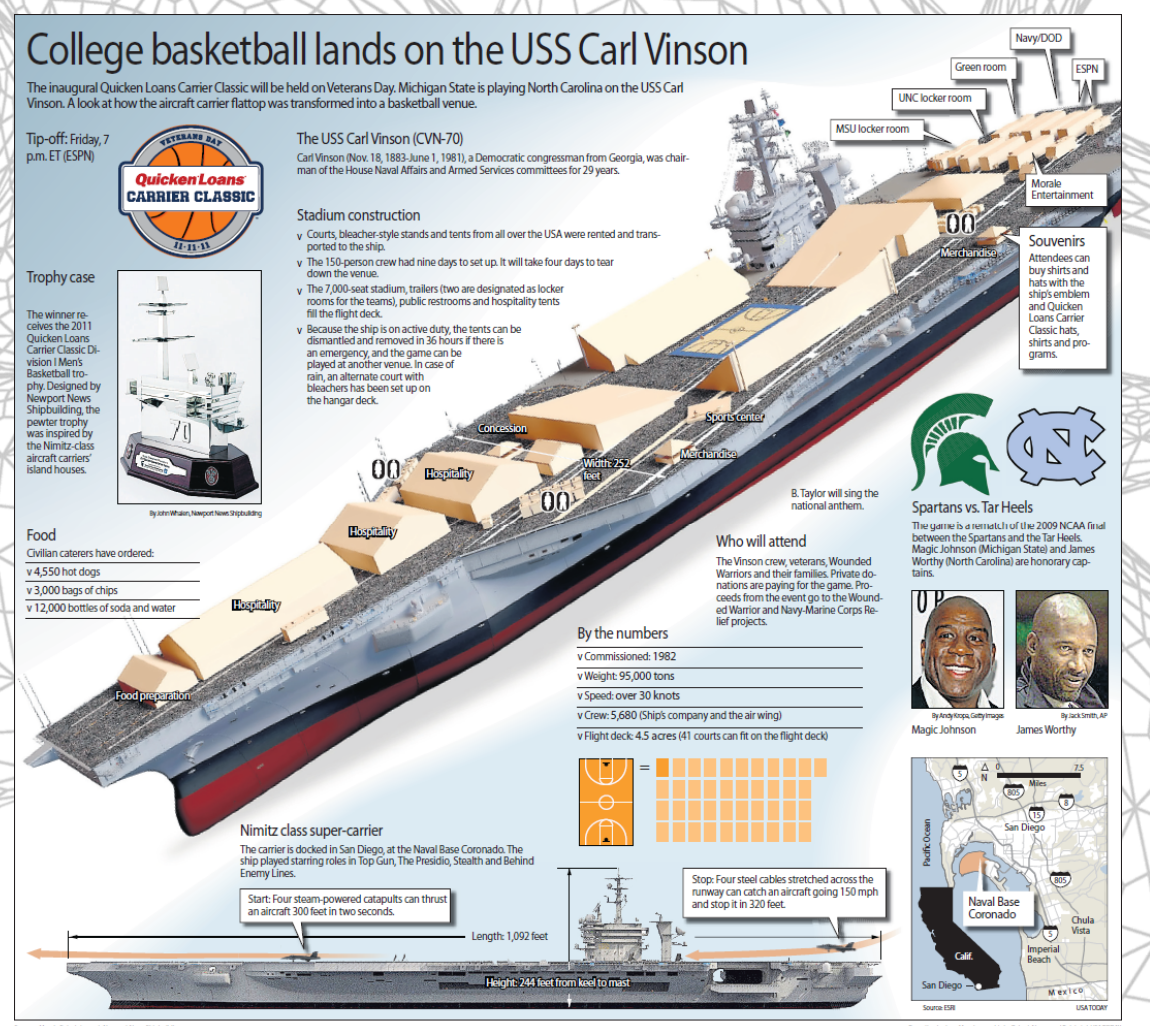
Large Scale Event Planning / Visualization





- Asset Based Design
- Multiple “What If” Scenarios
- Putting Your Assets in Context of a Customer’s Facility
- Visualization
- Concept Analysis

Large Scale Event Planning / Visualization



- Asset Based Design
- Multiple "What If" Scenarios
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- Visualization
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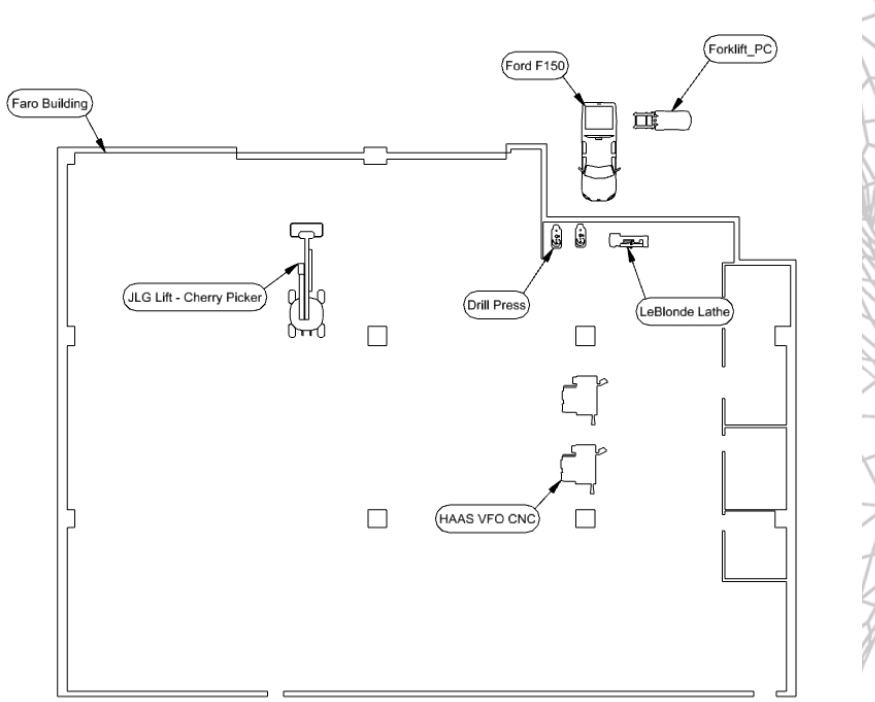
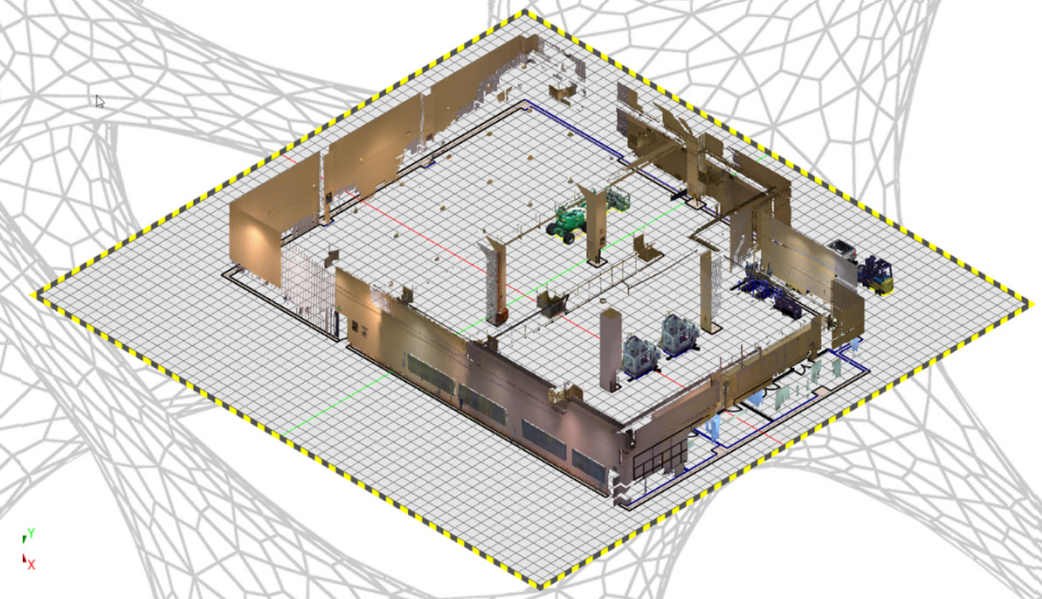
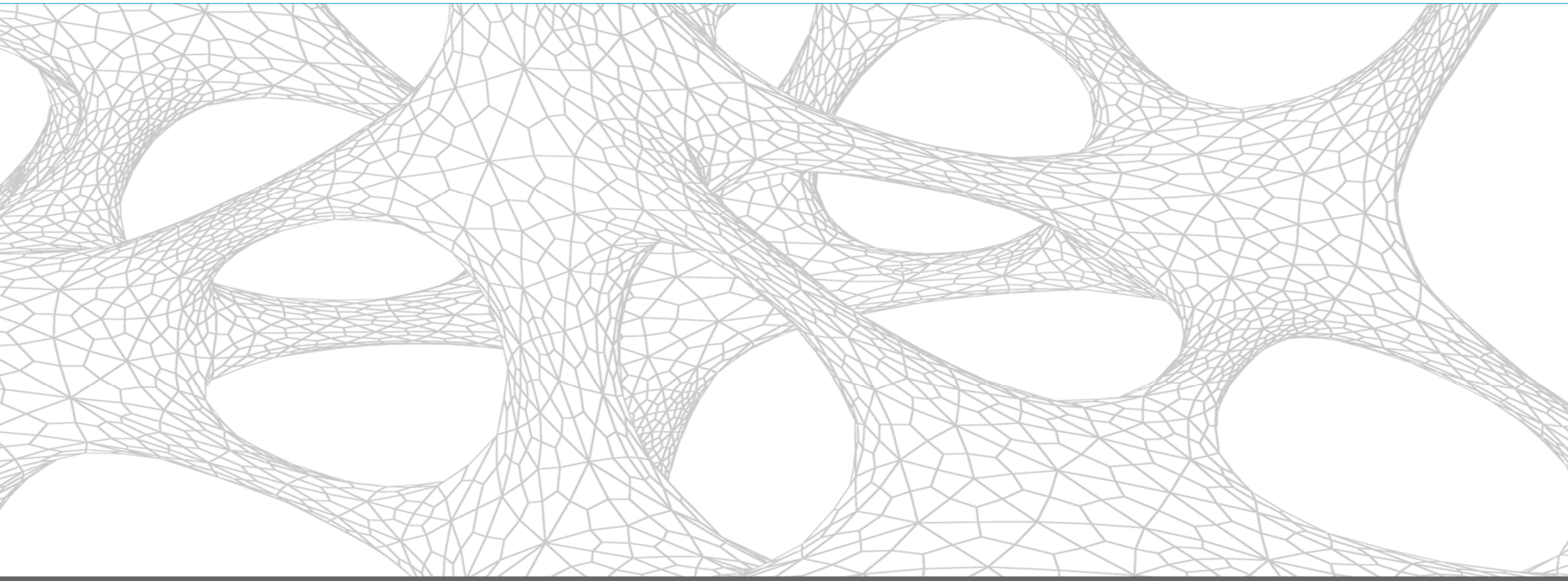
Reality Enabled Asset Layout R.E.A.L.



Layout List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	Faro Building	Faro Building
2	1	JLG Lift - Cherry Picker	JLG Lift - Cherry Picker
3	2	Drill Press	Drill Press
4	1	LeBlonde Lathe	LeBlonde Lathe
5	2	HAAS VFO CNC	HAAS VFO CNC
6	1	Ford F150	Ford F150 - 2008
7	1	Forklift_PC	Forklift



- Assets from Reality Capture
- Visualization
- Concept Analysis



Conclusion

Don’t Let the Word “Factory” Get it the Way!

Make anything™

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