Using FDS to Create Compelling Bid Packages

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Class summary

Selling complex and customized equipment is challenging at best, and creating a compelling bid package is critical to winning more business. This class will show how to use Factory Design Suite software to accelerate the creation of a build proposal, how to create compelling content, and how to create a bill of equipment required for costing the proposal.

Key learning objectives

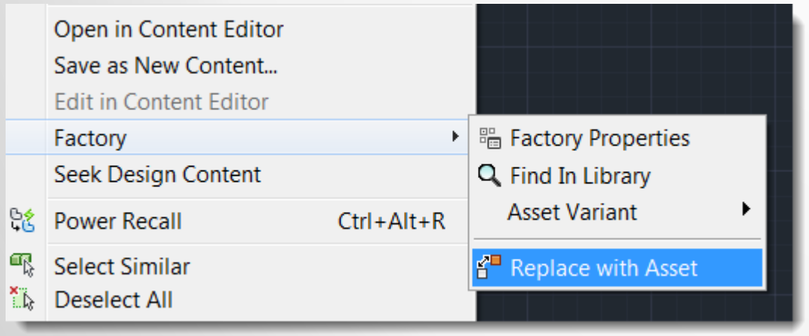
At the end of this class, you will be able to:

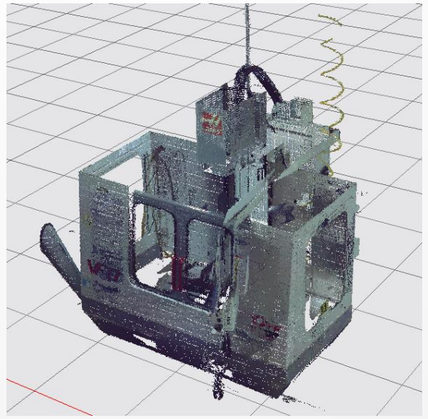
- Learn how to quickly build a library of equipment for bid
- Learn how to create visualizations to compliment a bid
- Learn how to create a bill of equipment
- Learn how to create project estimation and costing

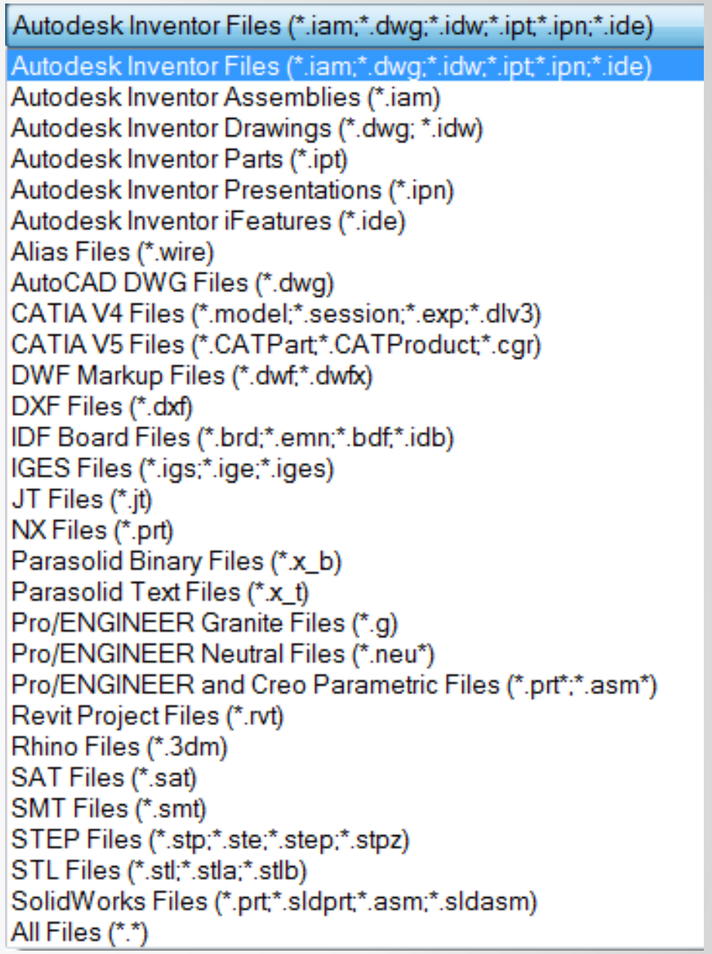
Building an Equipment Library

Factory Assets

- Open Other CAD Formats Natively
- AnyCAD Technology
- Direct Editing Capabilities
- Add iProperties (Desc, Cost)
- Point Cloud (123D Catch)
- Placeholders

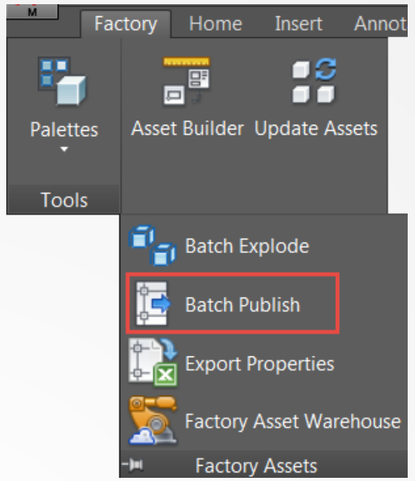


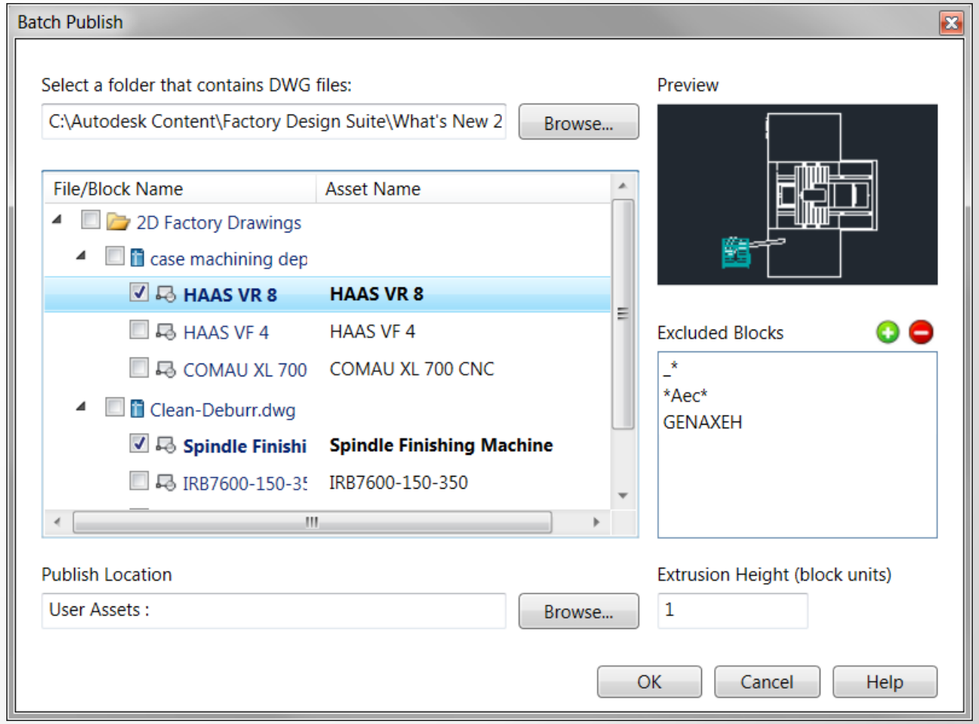




Batch Publish

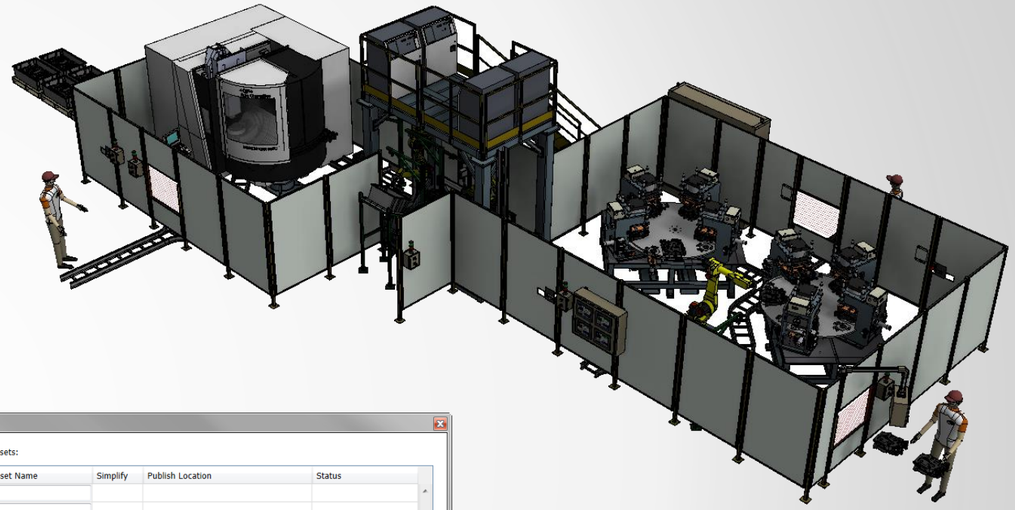
- Quickly publish factory assets from legacy 2D layouts in a selected folder
- Provide a depth for a simple extrusion height
- Attach 3D models to the assets after they have been published to the library

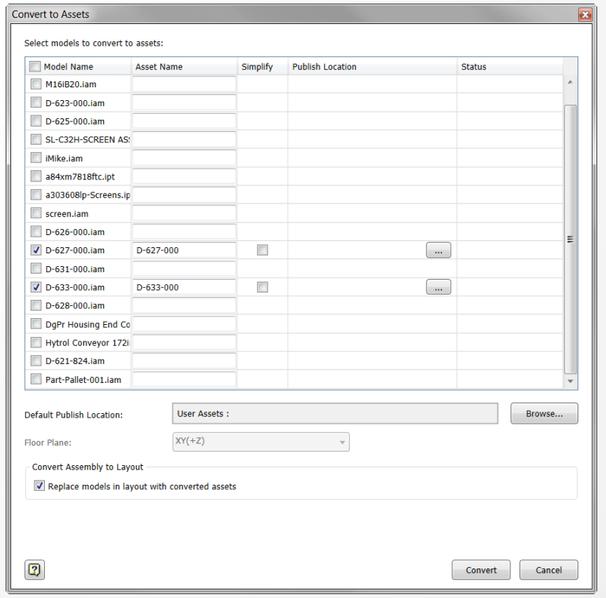




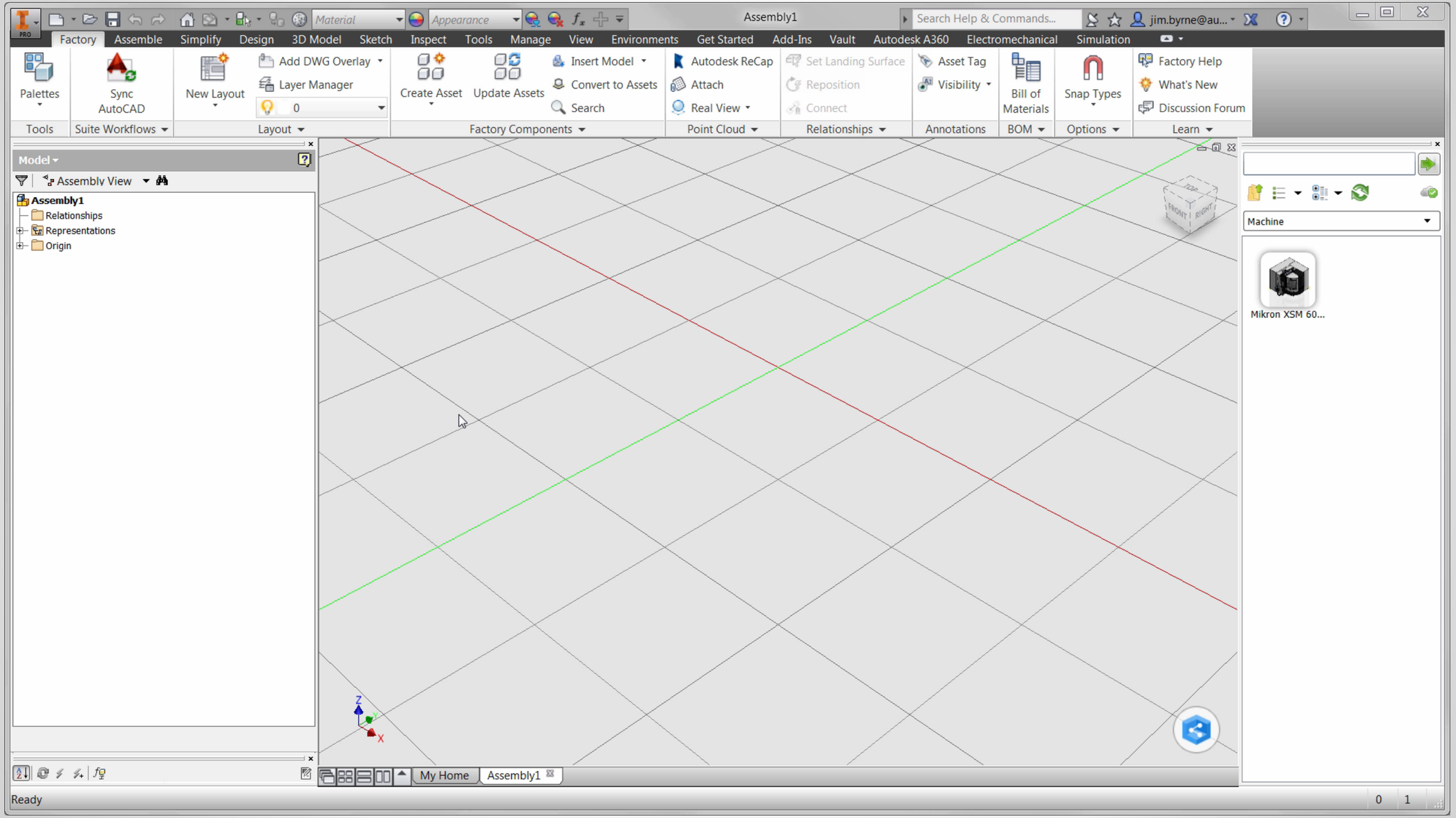
Convert 3D Models to Assets

- Convert existing models to assets
- Batch publish interface
- Save assemblies as parts/bodies
- Replace existing models with the published asset automatically





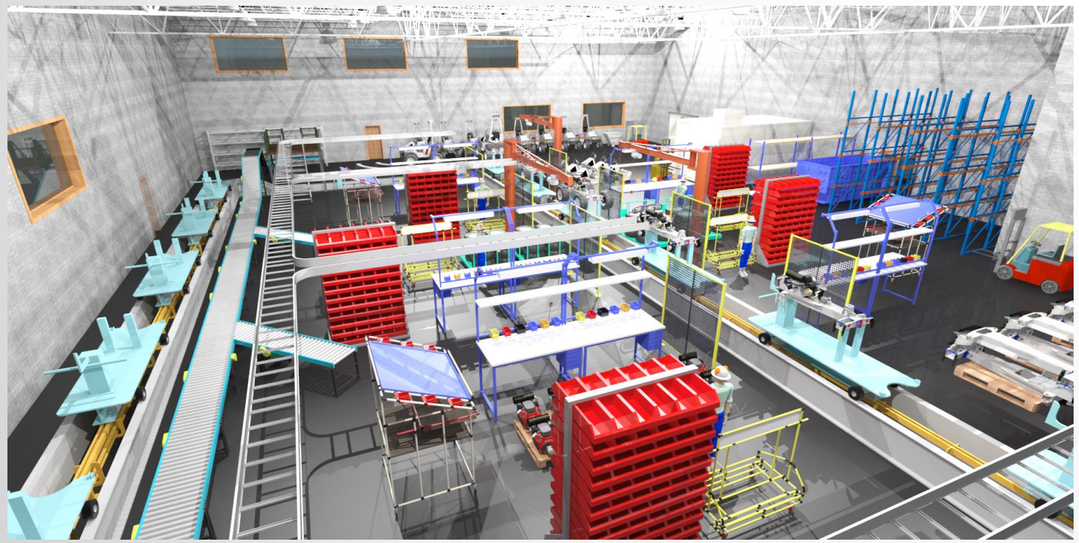
AnyCAD

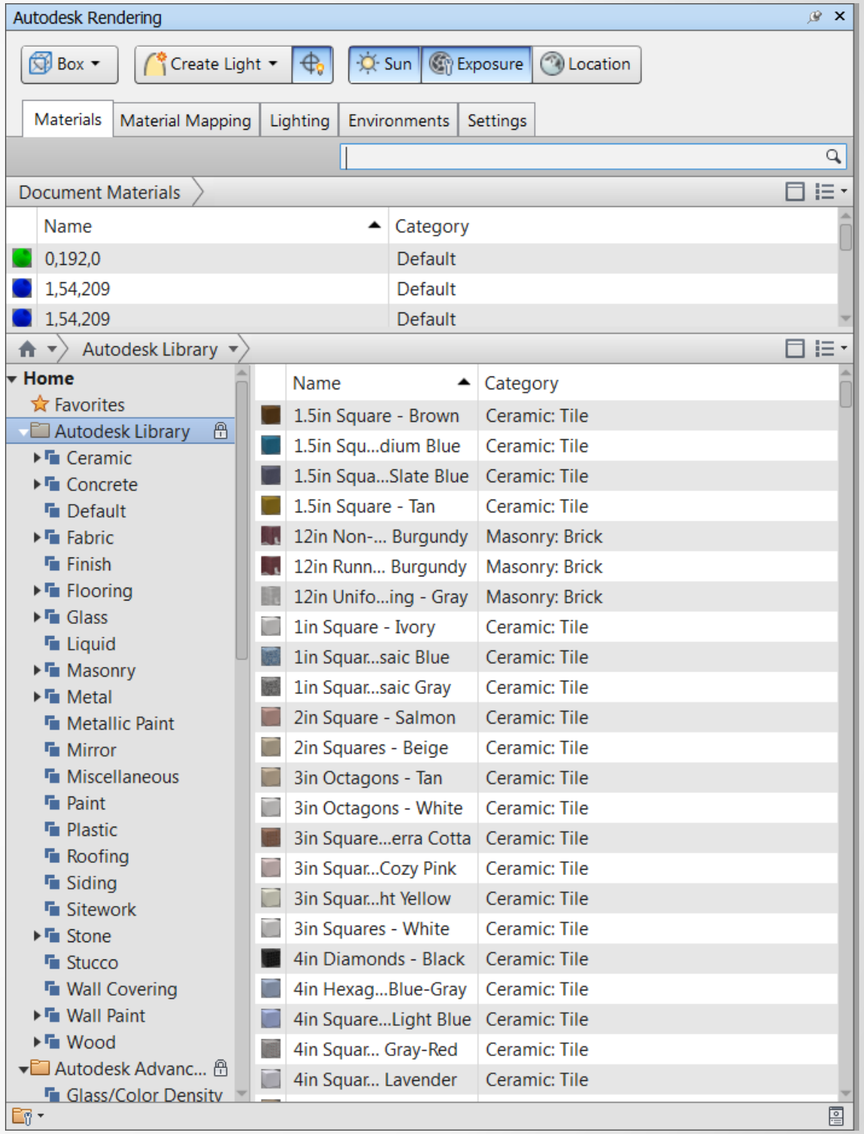

Assembly1
Search Help & Commands...
jim.byrne@au...
Factory
Assemble
Simplify
Design
3D Model
Sketch
Inspect
Tools
Manage
View
Environments
Get Started
Add-Ins
Vault
Autodesk A360
Electromechanical
Simulation
Palettes
Sync AutoCAD
New Layout
Add DWG Overlay
Layer Manager
Create Asset
Update Assets
Insert Model
Convert to Assets
Search
Autodesk ReCap
Attach
Real View
Set Landing Surface
Reposition
Connect
Asset Tag
Visibility
Bill of Materials
Snap Types
Factory Help
What's New
Discussion Forum
Tools
Suite Workflows
Layout
Factory Components
Point Cloud
Relationships
Annotations
BOM
Options
Learn
Model
Assembly View
Assembly1
Relationships
Representations
Origin
Machine
Mikron XSM 60...
My Home
Assembly1
Ready

Visualizations

Material Library

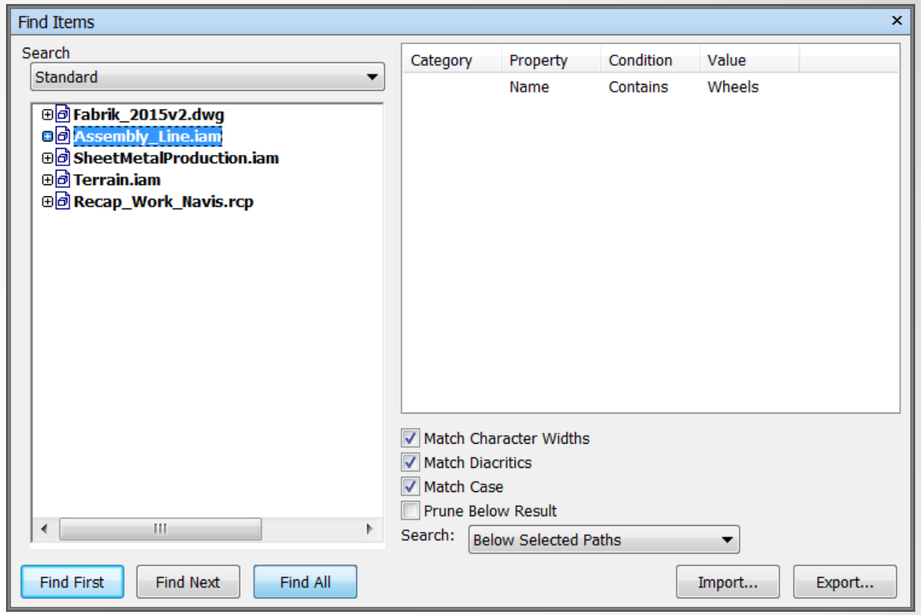
- Unified Library of Materials
- Common Among All Autodesk Modeling Software

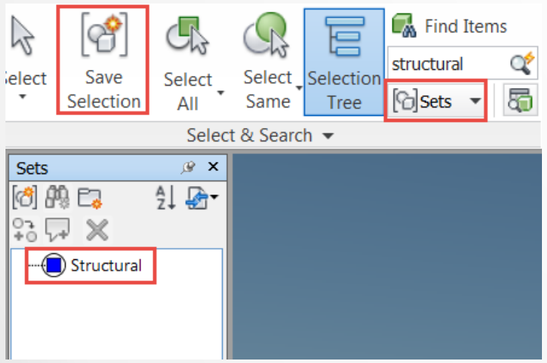


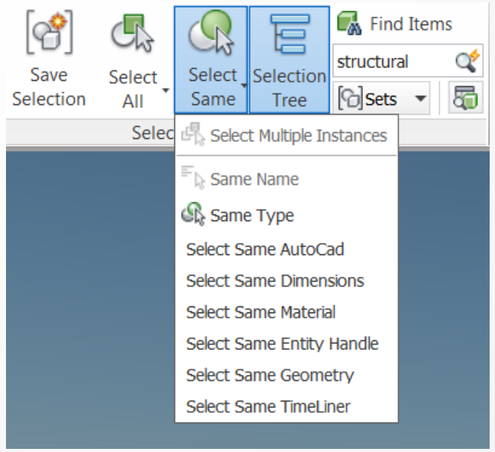


Finding Components

- Find Items
- Quick Search
- Select Same Type
- Save Selection

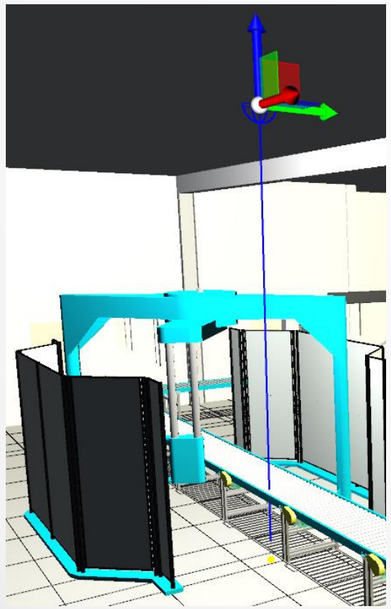


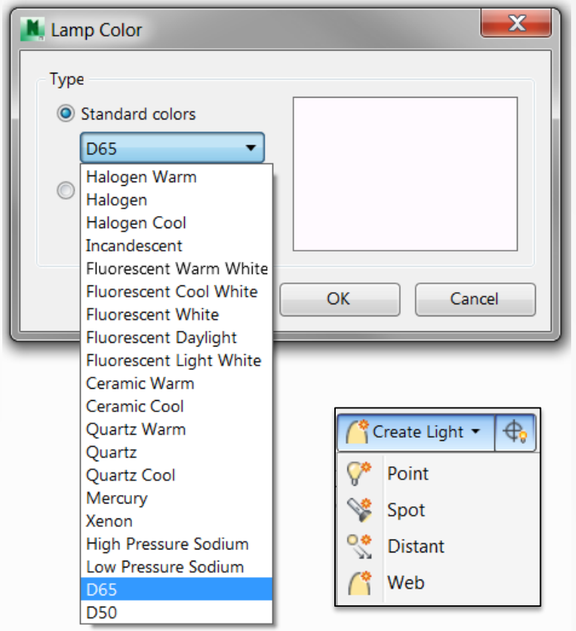


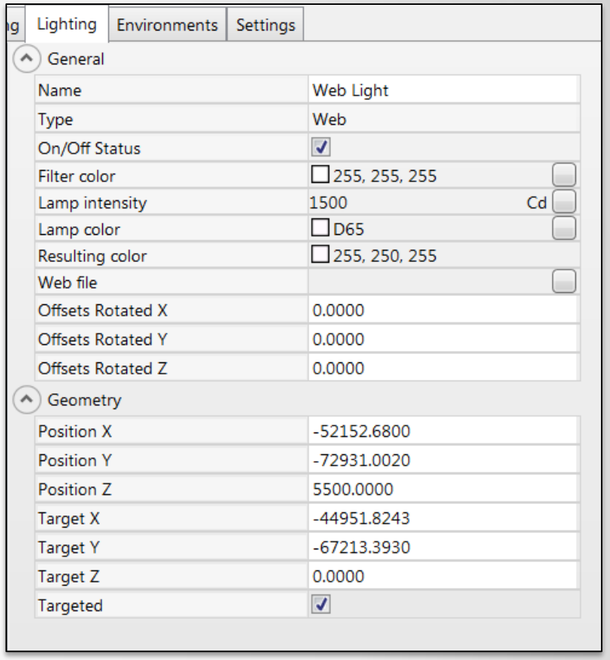


Lighting

- Types of Lights
- Custom Properties
- Standard Color Library

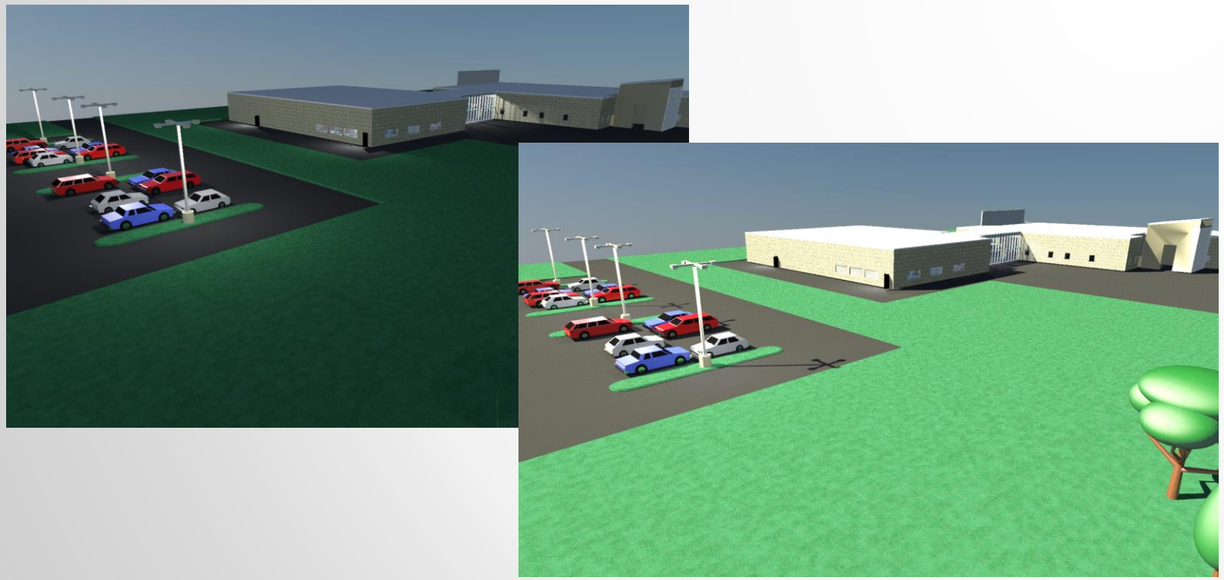


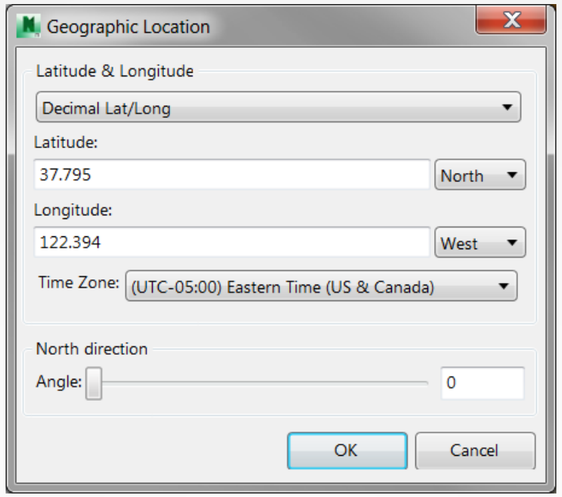


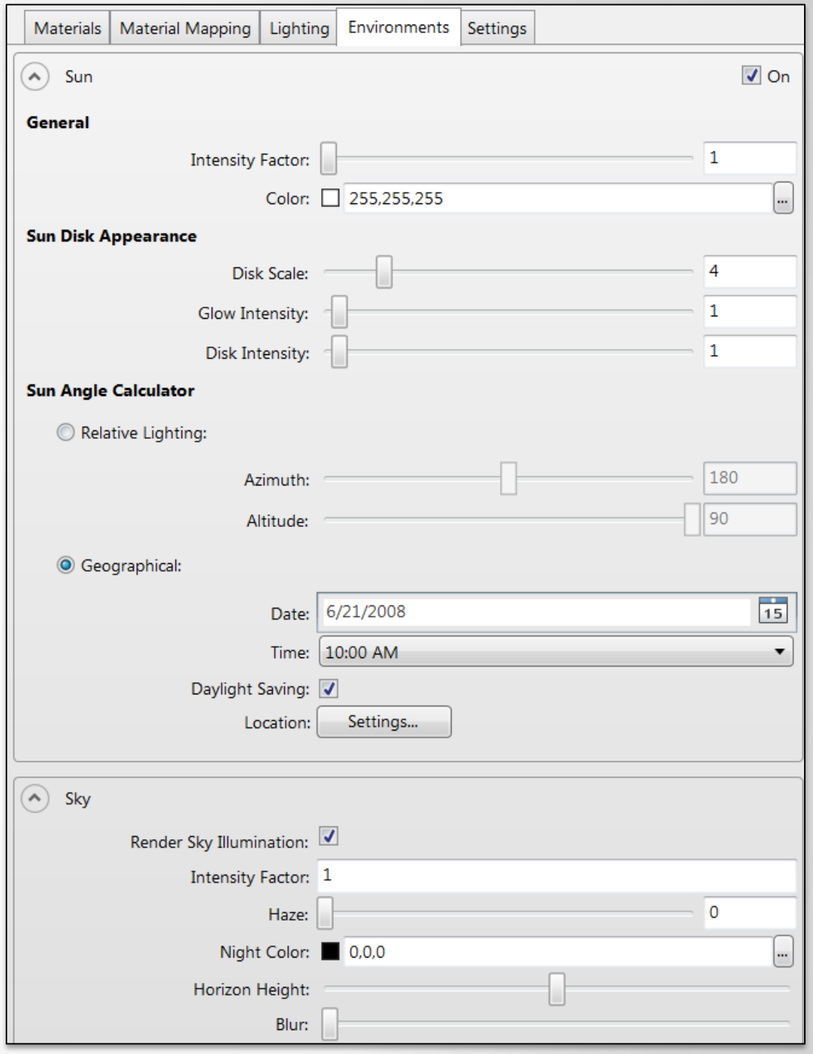


Environment

- Sun
- Sky
- Exposure
- Location

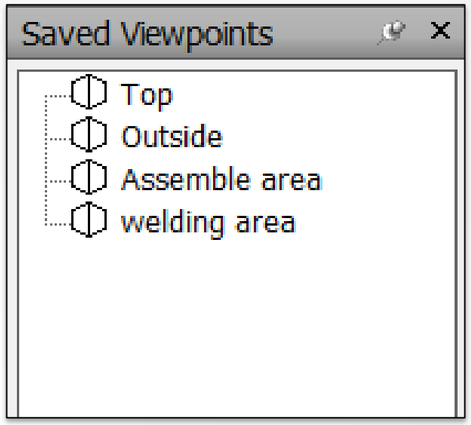


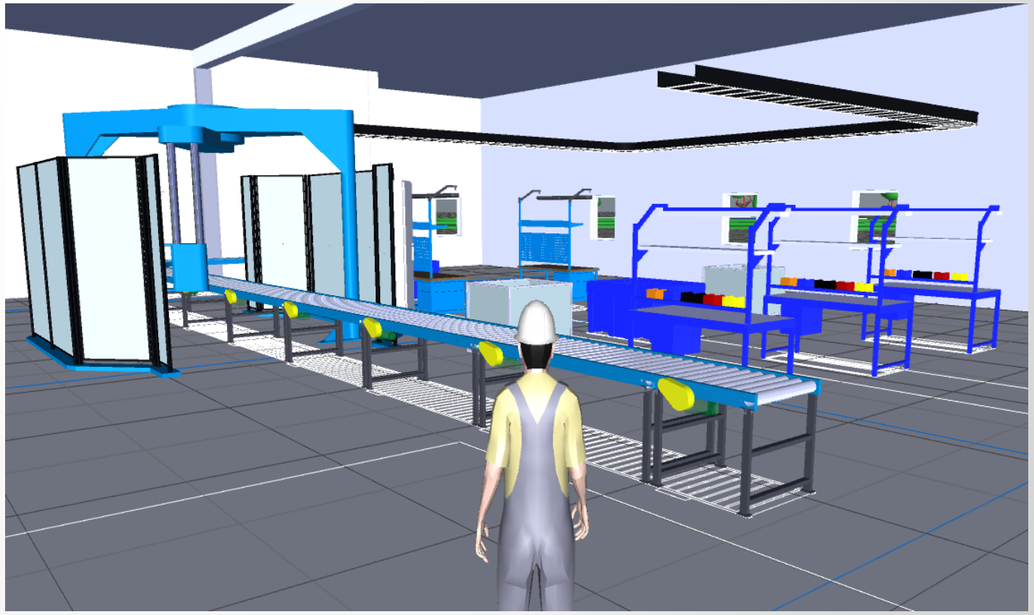




Save Viewpoints

- Save Views
  - Camera Position
  - Orientation
  - Field of View
  - Lighting Mode
  - Sectioning Configuration
  - Visibility
  - Appearance



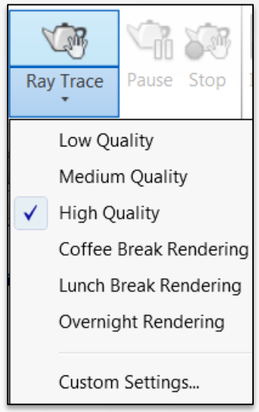


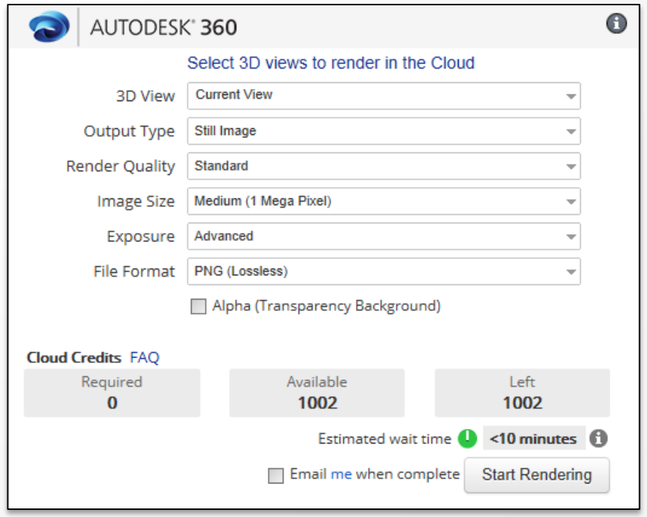
Rendering

Low Quality	Med Quality	High Quality	Coffee Break	Lunch Break	Overnight
No anti-aliasing Shading is low quality Runs very fast Contains small inaccuracies and imperfections	Anti-aliasing Sample filtering Increased reflection depth Good for a final preview Few artifacts	Anti-aliasing Sample filtering Includes all reflections and shadows High fidelity Minimum artifacts	10 Minutes Simplistic Lighting Standard numerical precision	60 Minutes Advanced Lighting Standard numerical precision	720 Minutes Advanced Lighting High numerical Precision

Rendering

- Render in the Cloud
- Cloud credit usage is based on…
  - Image Size (MB)
  - Output Type
  - Render Quality

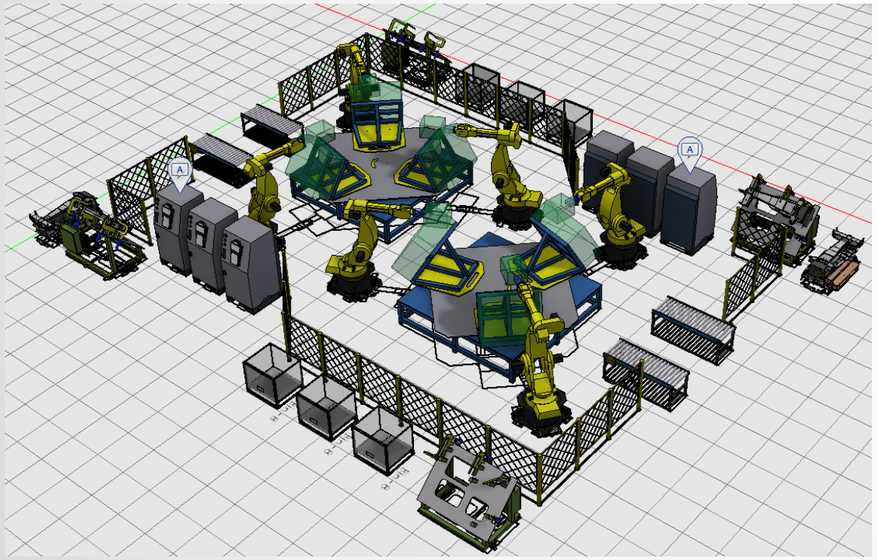




Bill of Equipment

Bill of Equipment

- Create a bill of equipment for your factory layout that includes equipment descriptions, quantity, estimated cost, and key parameters. You can then export this table to other database-driven applications.



Bill of Materials [Welding Cell Clean.iam]

Show Clear

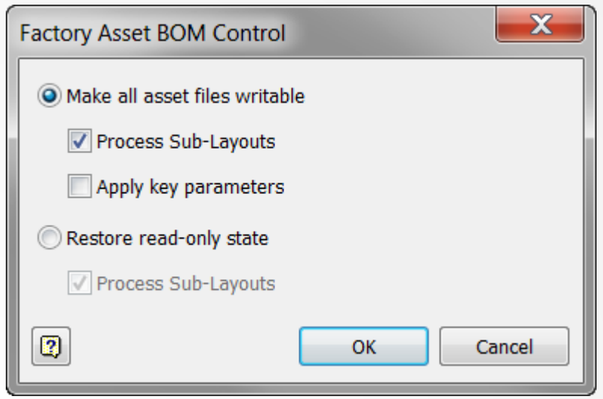
Model Data | Structured | Parts Only (Disabled)

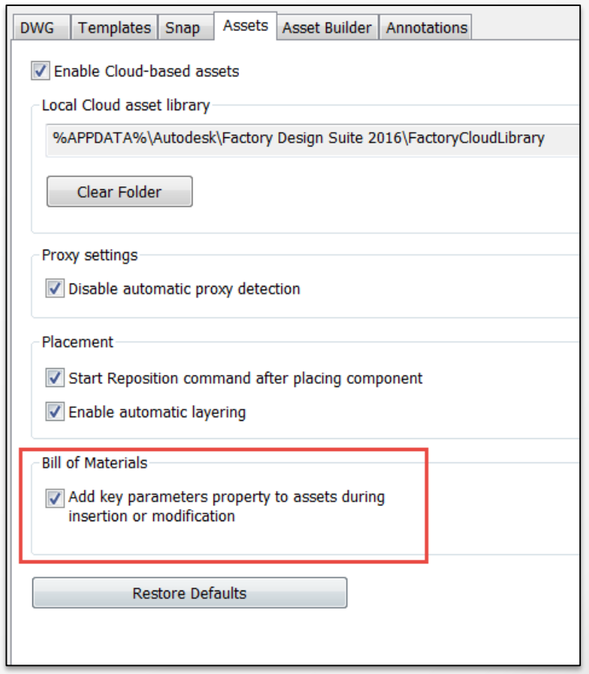
Item	Part Number	Thumbnail	Estimated Cost	Unit QTY	QTY	Description	Key Parameters
1	Bin-8_1041x889x939			Each	6		Length=41.000 in;Width=35.000 in;Height=37.000 in;LidOpen=True;
2	welding cell 3		$1,250.00	Each	2		Height=762.000 mm;Width=711.200 mm;
2.1	Turn Table		$575.00	Each	1		
2.2	Robot Riser		$195.00	Each	3		
2.3	6-Axis Robot		$997.00	Each	3		
2.4	Robot Controller		$3,000.00	Each	3		

Import... Export... Done

Bill of Equipment Settings

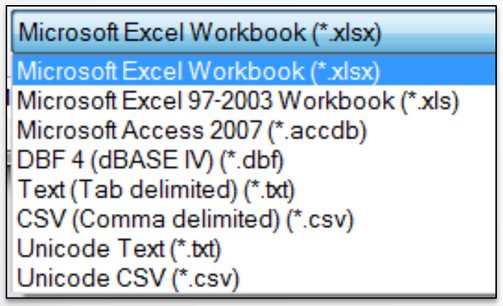
- Factory Asset BOM Control
- Add iProperties
  - Estimated Cost
  - User Assets Only





Export to Excel

- Export the BOM to Excel and apply a column calculating the total cost
- Create a custom template for costing

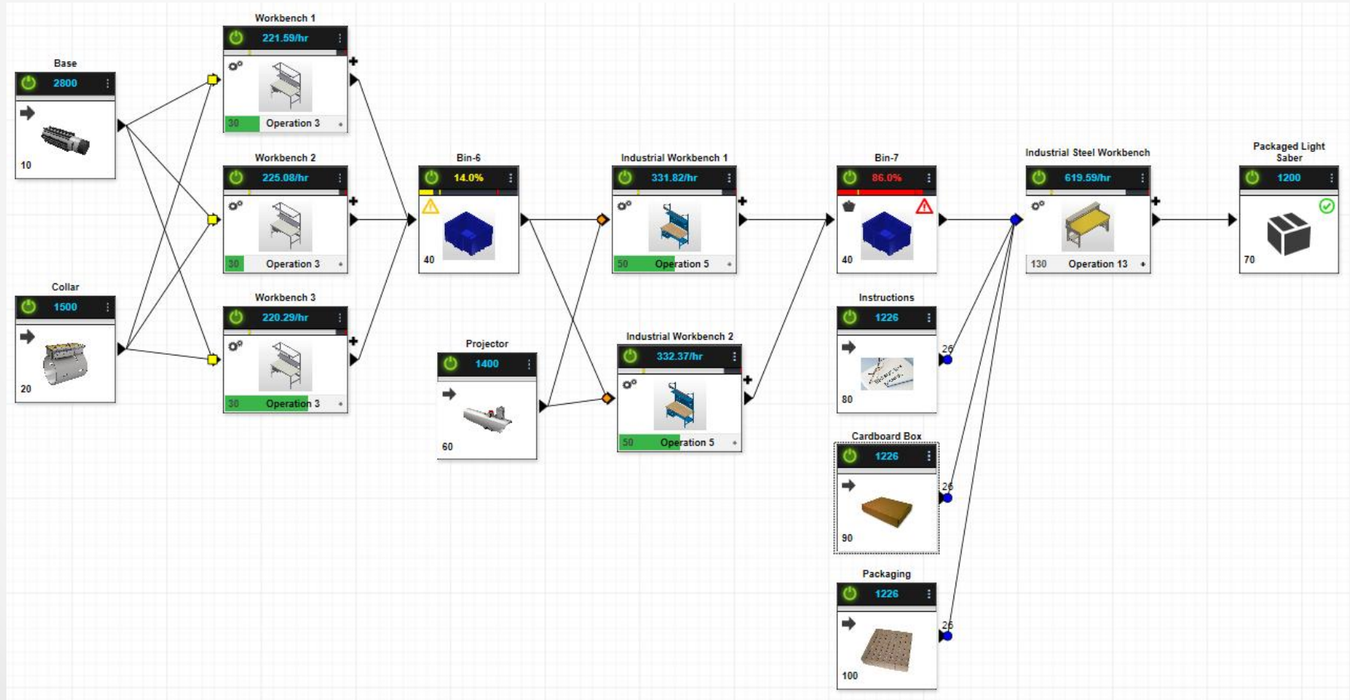


	A	B	D	E	F	G
1	Item	Part Number	Estimated Cost	Unit QTY	QTY	Total Cost
2	1	Bin-8_1041x889x939		1	6	0
3	2	welding cell 3	$1,250.00	1	2	2500
4	2.1	Turn Table	$575.00	1	1	575
5	2.1.1	Turn Table		1	1	0
6	2.1.2	Turn Table Tool		1	3	0
7	2.2	Robot Riser	$195.00	1	3	585
8	2.3	6-Axis Robot	$997.00	1	3	2991
9	2.3.1			1	1	0
10	2.3.2			1	1	0
11	2.3.3	Axis2		1	1	0
12	2.3.4			1	1	0
13	2.3.5	Axis4		1	1	0
14	2.3.6	Axis5		1	1	0
15	2.3.7	Axis6		1	1	0
16	2.3.8	End Effecter		1	1	0
17	2.3.9	Material		1	1	0
18	2.3.10	Safety Zone		1	1	0
19	2.4	Robot Controller	$3,000.00	1	3	9000
20	2.5	Straight Roller Conveyor		1	2	0
21	2.6	Safety Fence (Turn)1		1	2	0
22	2.7	safety Fence		1	4	0
23	3	Chassis PalletPart		1	2	0
24	4	Vimek Fixtrure empty	$45.00	1	2	90
25	5	VimekClampingLoaded	$60.00	1	2	120
26	5.1	Vimek Fixtrure empty		1	1	0
27	5.2	203-041-02_Substitute_2		1	1	0
28						$15,861.00
29						

Project Estimation and Costing

Process Analysis 360

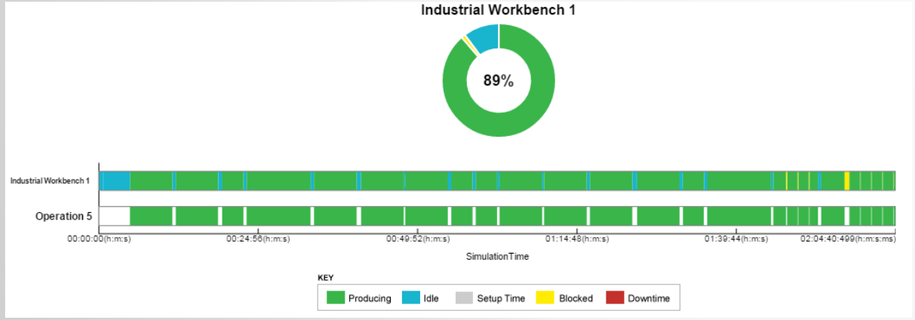
- Quickly model manufacturing processes
- Study manufacturing alternatives to optimize performance
- Identify bottlenecks, simulation unplanned downtime

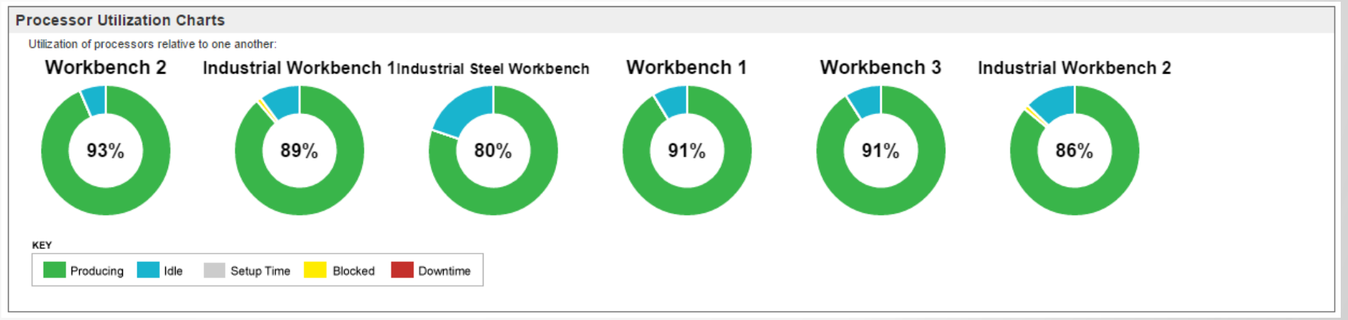


Process Analysis 360

- Setup, Processing, Idle, Blocked
- Average production time per operation
- Utilization

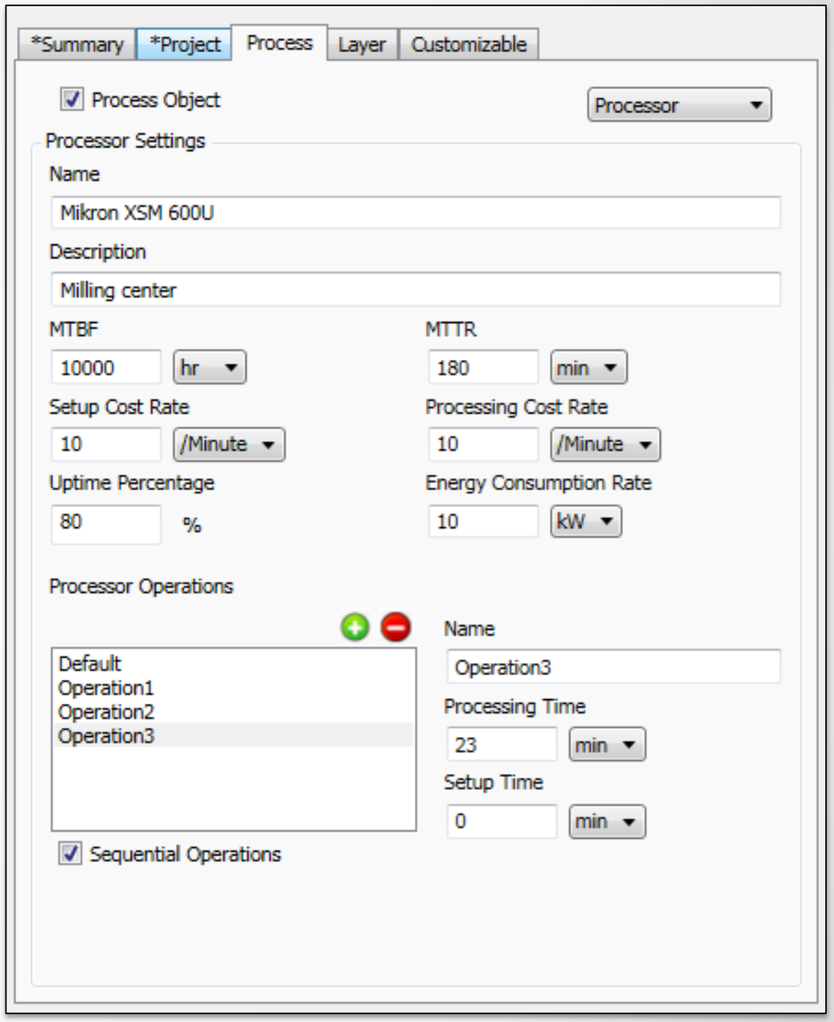
Run Date/Time:	11/4/2015 4:06:48 PM
Elapsed Time:	02:04:40:499(h:m:s:ms)
Total Uptime:	11:01:36(h:m:s)
Total Downtime:	00:00:00(h:m:s)
Utilization:	88.45%



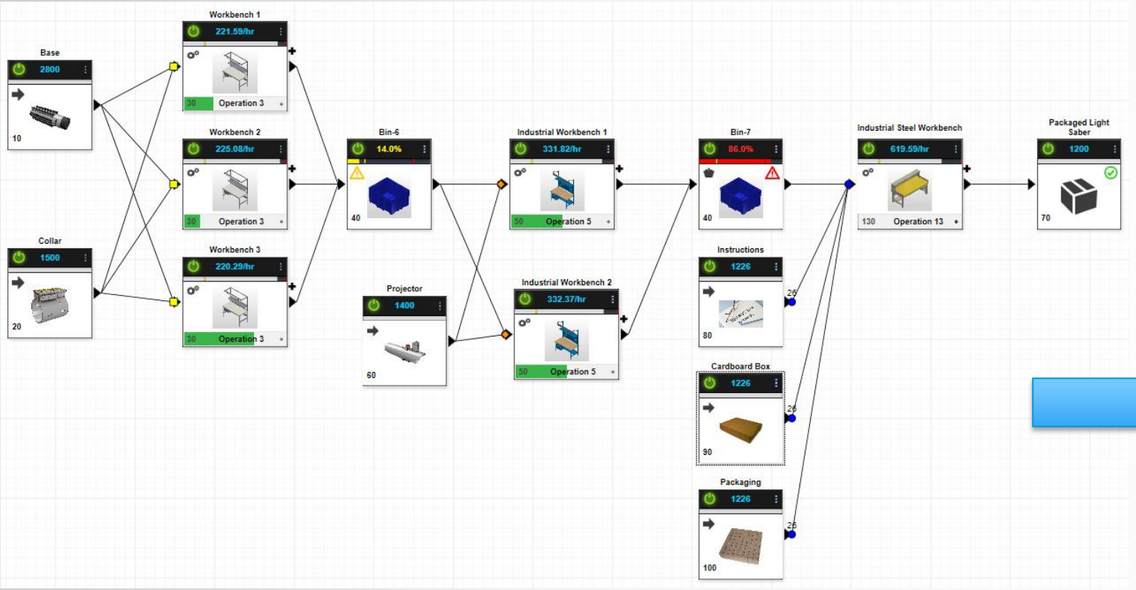


Factory Assets and PA360

- Process Analysis 360 properties published with library asset
- General machine properties
- Setup and processing cost
- Energy consumption



Exporting a summary report

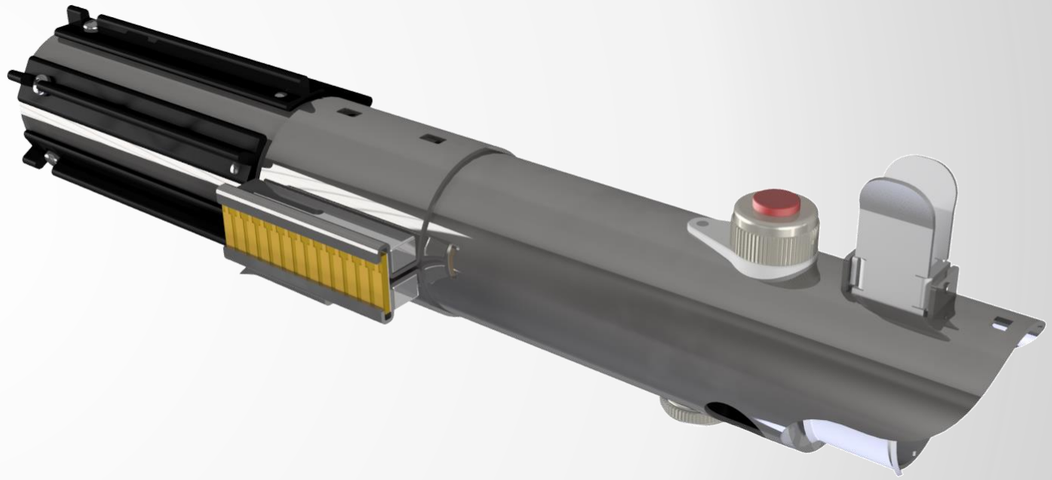


Products Produced		Part Costs	Labor	Energy		Total		COGS
1,220		$ 108,452.00	$ 74.56	$ -		$ 108,526.56		$ 88.96
4,723		$ 419,814.19	$ 288.63	$ -		$ 420,102.82		$ 88.96
103,897		$ 9,235,912.26	$ 6,349.87	$ -		$ 9,242,262.13		$ 88.96

Part count	Scrap items	Part Costs	Labor	Energy
			$/hr	kWh
466	4.7	$ -	$ 25.25	0
663	16.6	$ -	$ 27.65	0
1200	6.0	$ -	$ 21.67	0
455	0.0	$ -	$ -	0
453	0.0	$ -	$ -	0
643	0.0	$ -	$ -	0
2800	0.0	$ 56,000.00	$ -	0
1500	0.0	$ 15,000.00	$ -	0
700	0.0	$ 35,000.00	$ -	0
1226	0.0	$ 1,226.00	$ -	0
1226	0.0	$ 1,226.00	$ -	0

Assembling Luke Skywalker's Light Saber

- How many operators do we need?
- How much does will it cost to make the finished product?
- Determine the impact of setup and processing times.
- Include planned downtime or on the fly during while it is solving
- Send the process directly to the layout via DWG



Questions