



# Building Ops

## Cross-Platform Workflows for a Mobile Asset Management Solution

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# Class summary

To date, created and collected asset data has been siloed within its respective native software, forcing users to extract information from each software and aggregate it to create a custom electronic deliverable. This is a very time-consuming manual process with inconsistent deliverables to owners. Cross-platform workflows in the Autodesk, Inc., suite has enabled information to be passed from one software to the next, resulting in a more-aggregated, seamless deliverable.

Class attendees will learn how to capitalize on the Autodesk suite of products (Navisworks software, BIM 360 Glue software, BIM 360 Field software, Building Ops software) to efficiently tie the intelligent model and collected asset data together for better use and navigation of the closeout deliverable. We will highlight a recently completed project that adopted Building Ops software as an asset management tool, gaining efficiency in the facility management process. This session features Building Ops, BIM 360 Field, and BIM 360 Glue.

*AIA Approved*




# Key learning objectives

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

- Create a project-specific plan that ensures a valuable owner deliverable
- Streamline the data-management process, by utilizing cross-platform workflows from the Autodesk suite of tools
- Understand the best practices for model linking and collecting construction data
- Understand how building owners and facility managers, can capitalize on the models and data collected throughout the construction process



The background image shows two construction workers walking through a large industrial tunnel. They are wearing orange high-visibility safety jackets with reflective stripes, white hard hats, and safety glasses. The tunnel is filled with large, white, cylindrical pipes or conduits that run horizontally across the frame. The lighting is somewhat dim, with some overhead lights visible in the distance.

“Now that **owners** everywhere are increasingly becoming more directly **involved** with **BIM**, their power is even greater to align BIM use with their specific goals, engage more effectively with all stakeholders and extend the **value** of BIM beyond construction into **facility management**.”

*The Business Value of BIM-Smart Market Report; McGraw Hill Construction, 2014*





# BIM & FM Statistics

- Trending away from Design and Construction applications into Operations and Maintenance

## Owners' Perspectives on the Single Greatest Benefit of BIM

Source: McGraw Hill Construction, 2014

Ranking	US	UK
1	Better Team Coordination/ Collaboration	Better Team Coordination/ Collaboration (tie)
2	Use for Facility Maintenance and Operations/ Long-Term Management	Better Accuracy/ Fewer Errors/ Better Quality (tie)
3	Helps With Visualization/ Understanding Concepts & Scope	More Efficient Design/ Build Process/ Standardized (tie)
4	Better Accuracy/ Fewer Errors/ Better Quality	Cost Savings
5	Cost Savings	Helps With Visualization/ Understanding Concepts & Scope

# BIM & FM Statistics

- Trending away from Design and Construction applications into Operations and Maintenance
- Forecast looks optimistic for US and UK economy

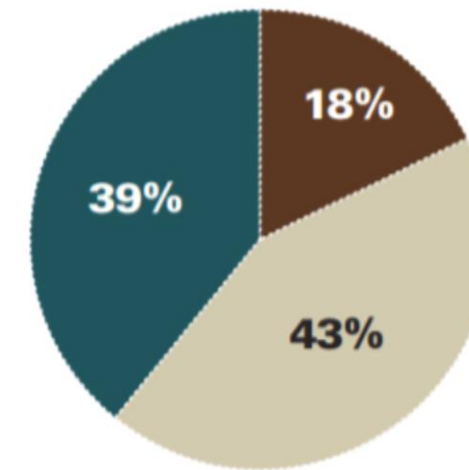
## Perceived Value by Owners of BIM for Facilities Management and Operations

Source: McGraw Hill Construction, 2014

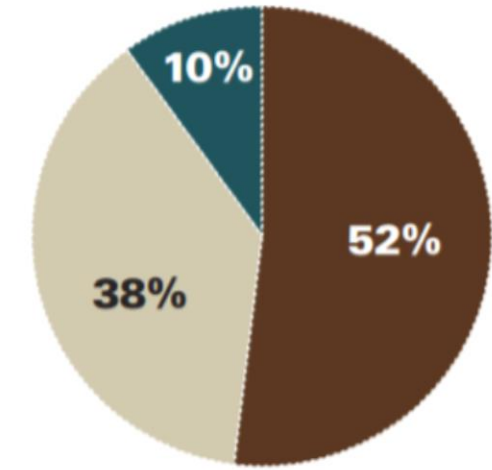
■ High Value  
■ Moderate Value  
■ No Value

US

2014

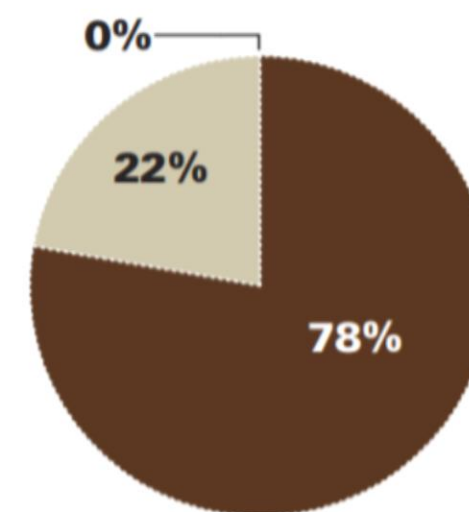


2019

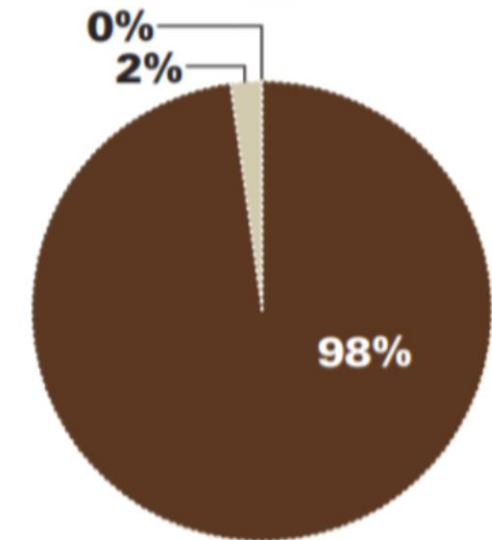


UK

2014



2019





# BIM & FM Statistics

- NIST study shows that inadequate information costs facility maintenance \$6.9 billion in the U.S. capital facilities industry

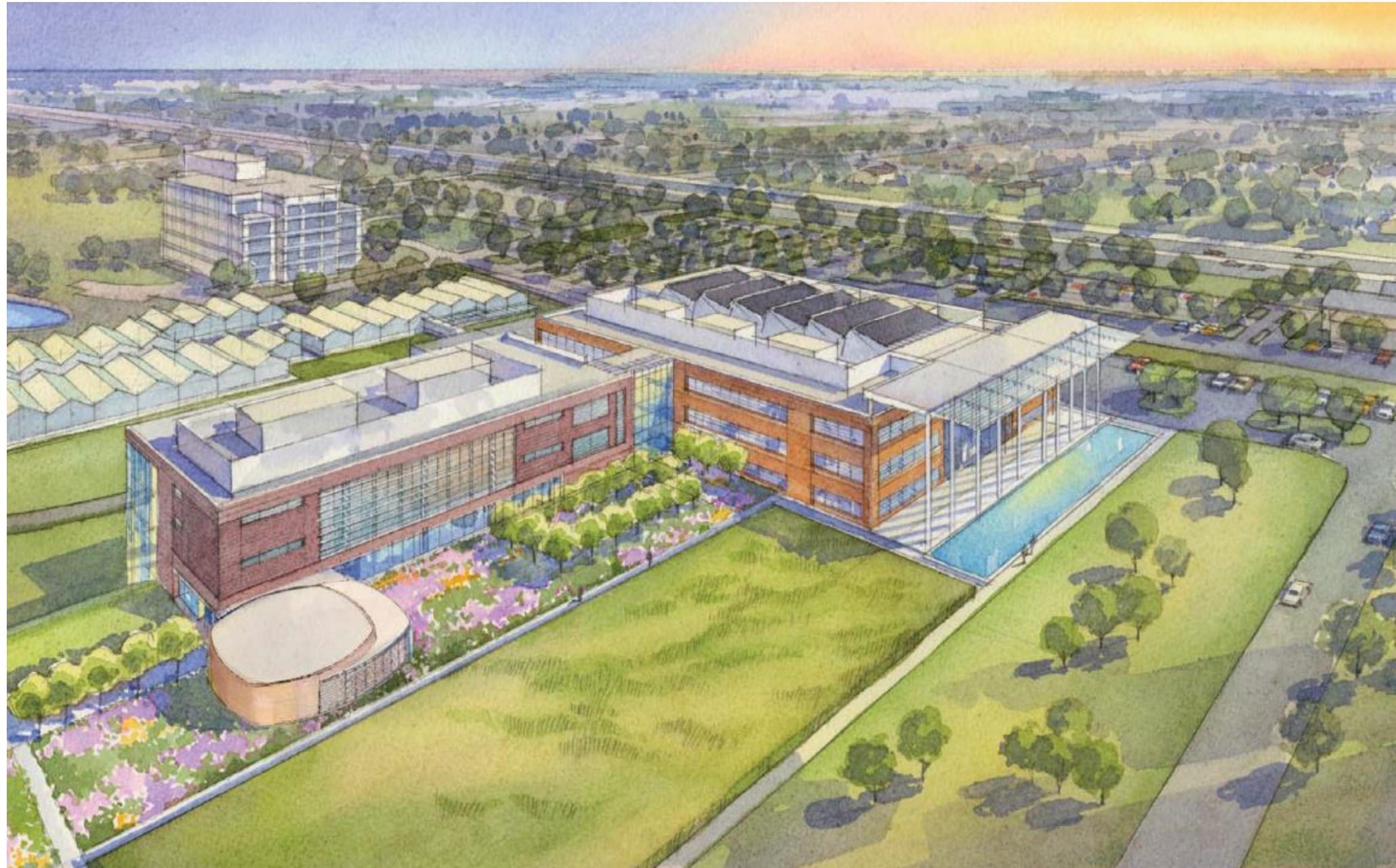
*Cost Analysis of Inadequate Interoperability....,  
National Institute of Standards and Technology*





# Case Study – Project Info

- \$34M
- 70,000 sf
- 3-story research facility expansion
- Repeat client
- Completed the east building in 2001
- Building Ops pilot





# Owner Challenges

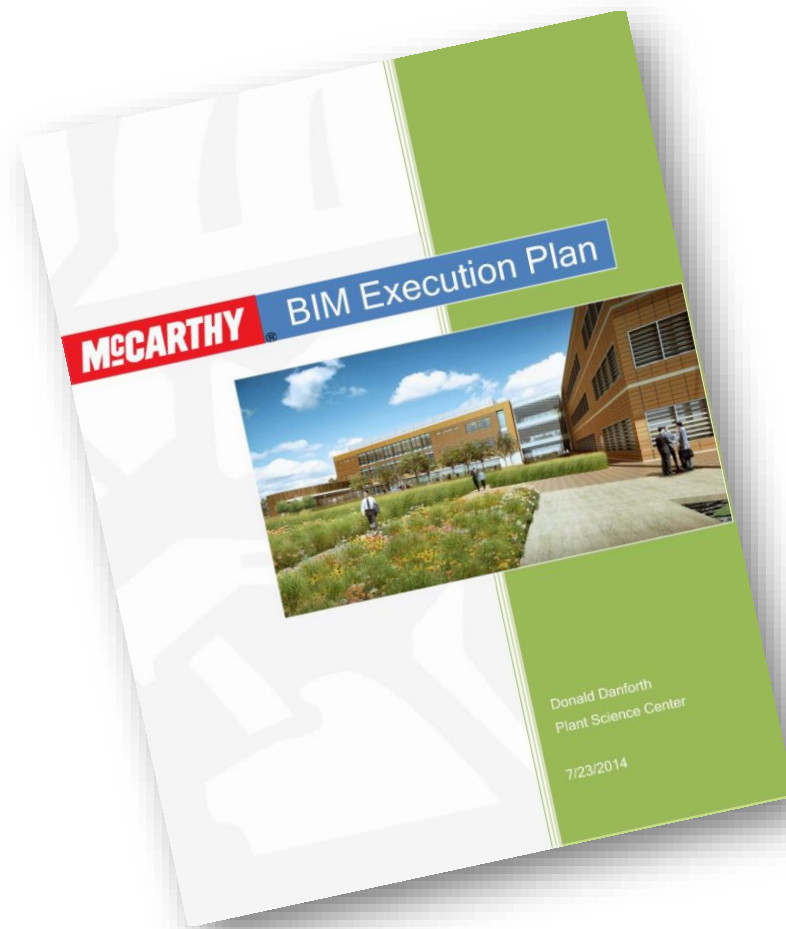
- Traditional handover takes too long to get integrated and usable
- Standard paper/digital deliverables were required by contract, but needed a better solution to supplement
- McCarthy proposed Building Ops solution to help with FM handover and start asset management on Day 1.





# Project Planning

- BIM Execution Plan
  - Planning with the end in mind
  - Establish client goals for operations & maintenance
  - Define standards and data requirements
  - Trade contractors involvement
  - Data collection process





# Data Management Workflow

- Tools & Software



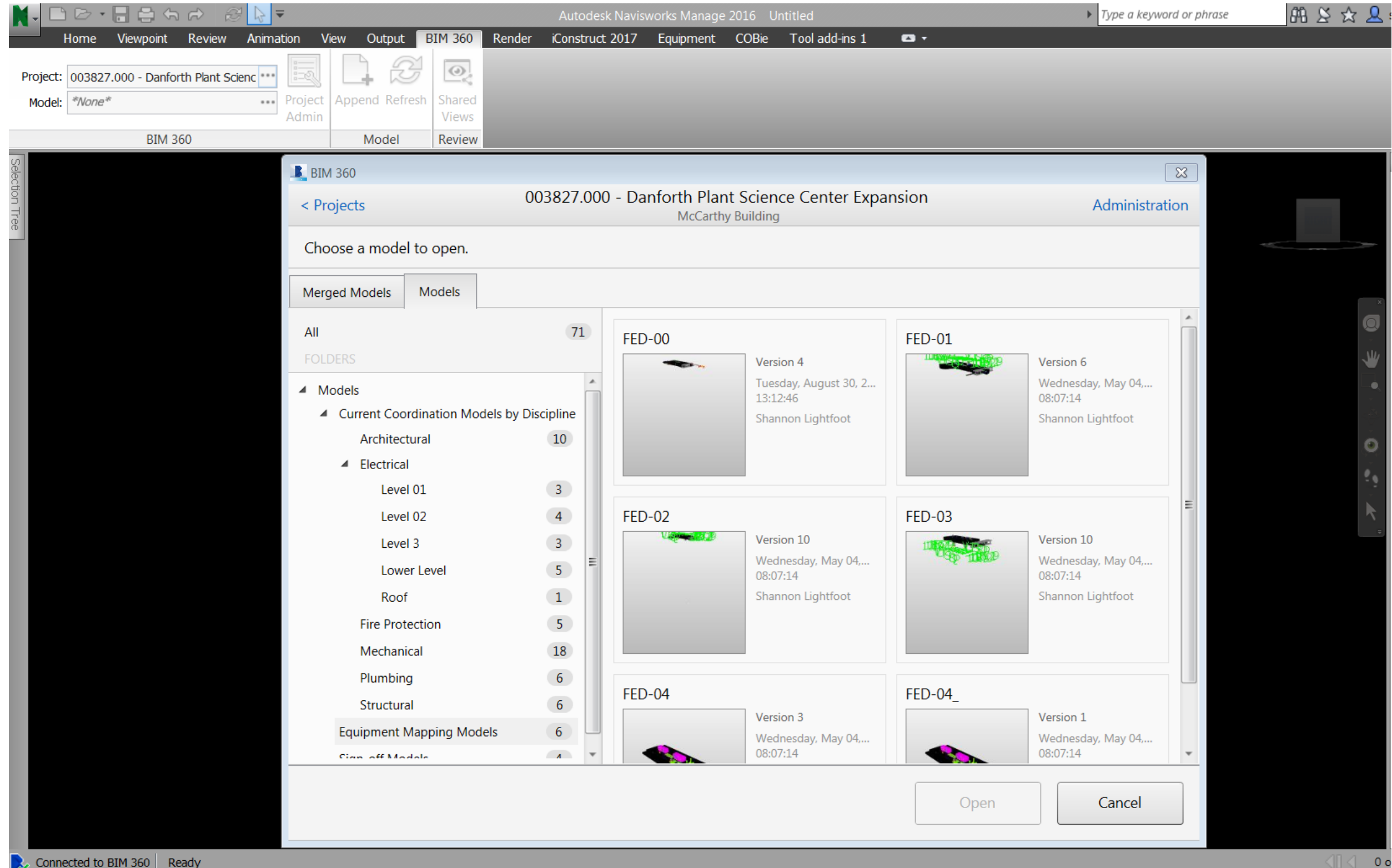
# B BUILDING OPS





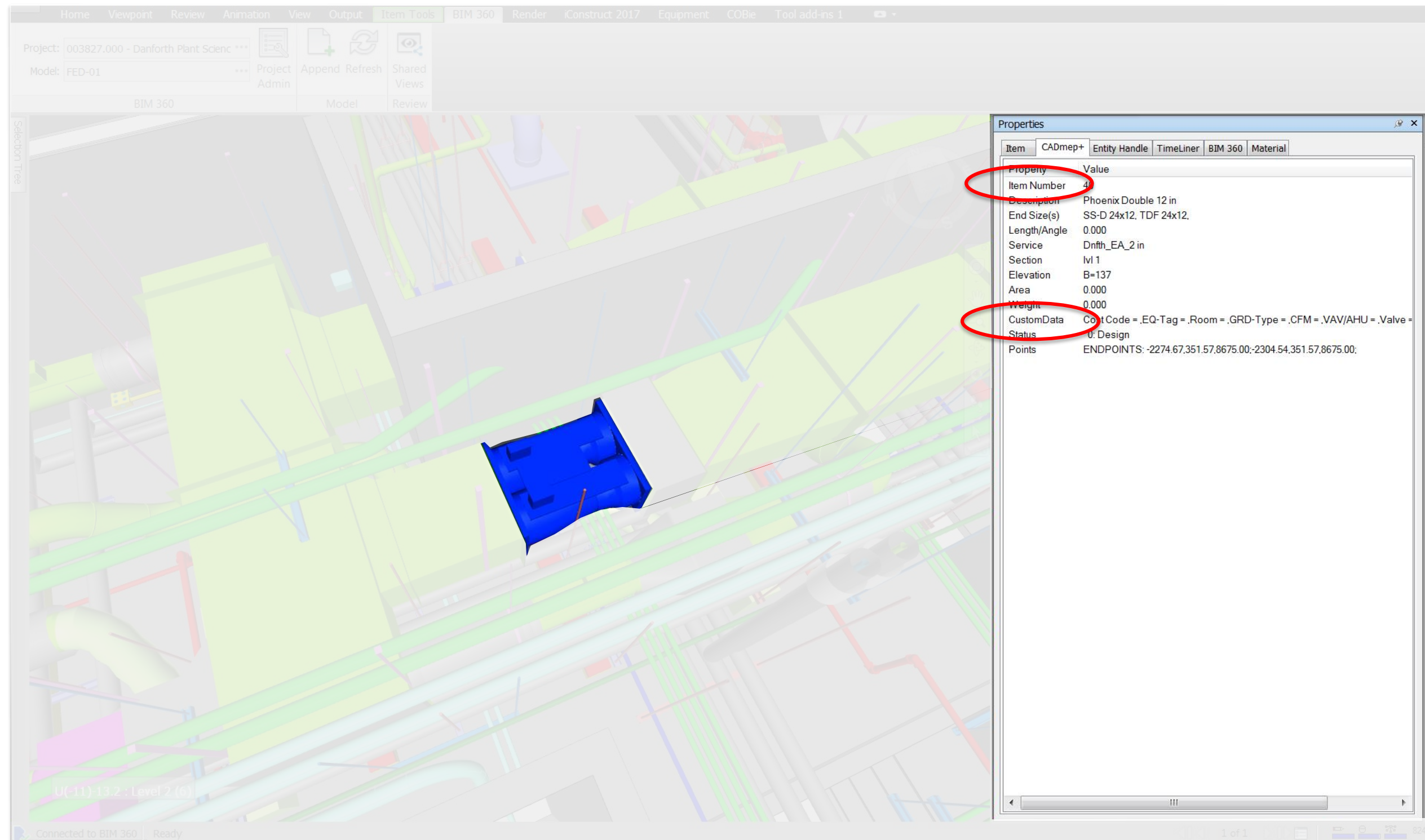
# Data Management Workflow

- Glue to Navisworks
  - Model prep for B360F mapping
  - Most flexible option



# Data Management Workflow

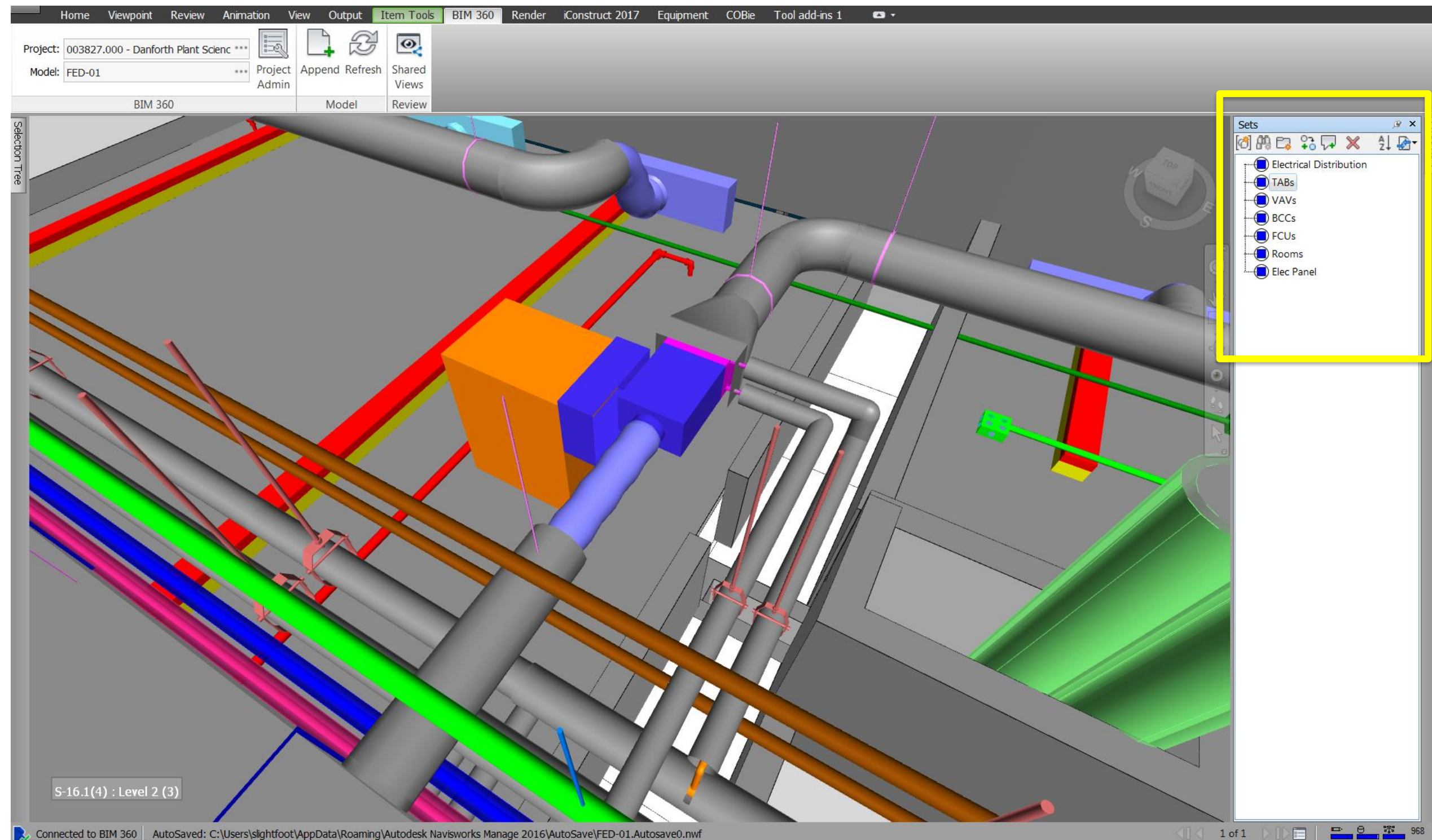
- Model & Data Standards
  - Object Naming Protocol
  - Model Layers
  - Default vs. Custom Parameters





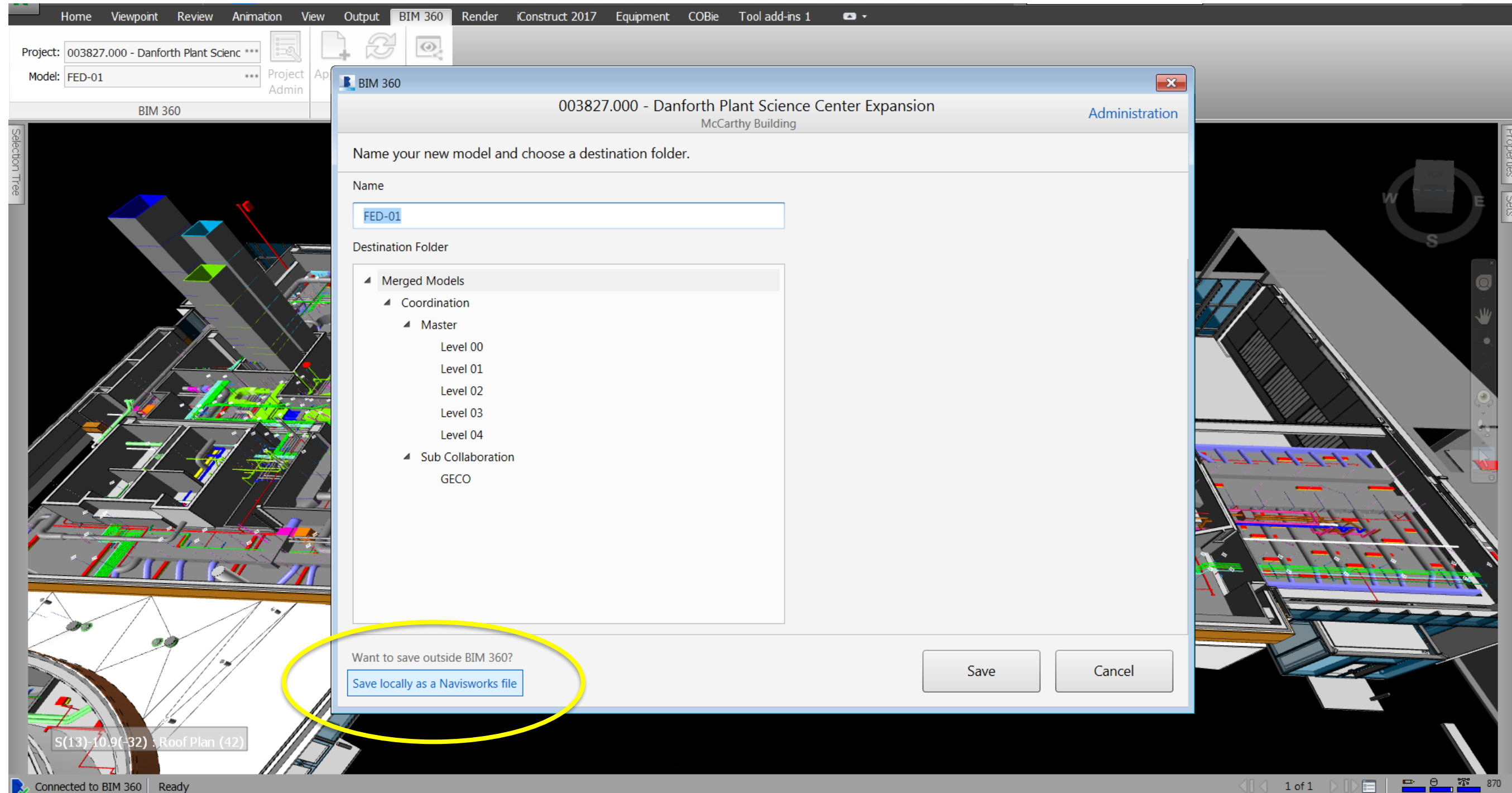
# Data Management Workflow

- Equipment Sets
  - Compartmentalize Equipment



# Data Management Workflow

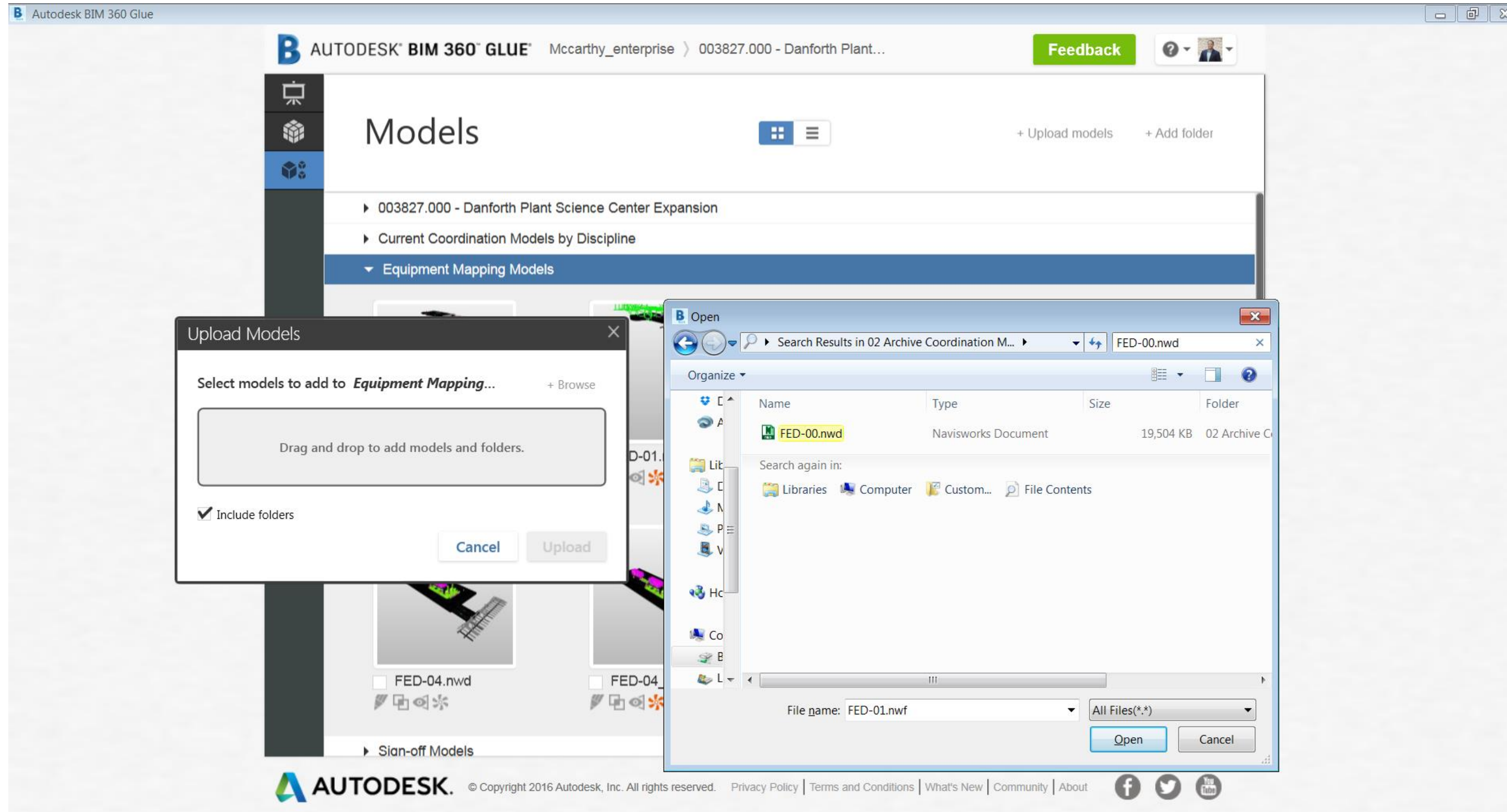
- Save NWD locally





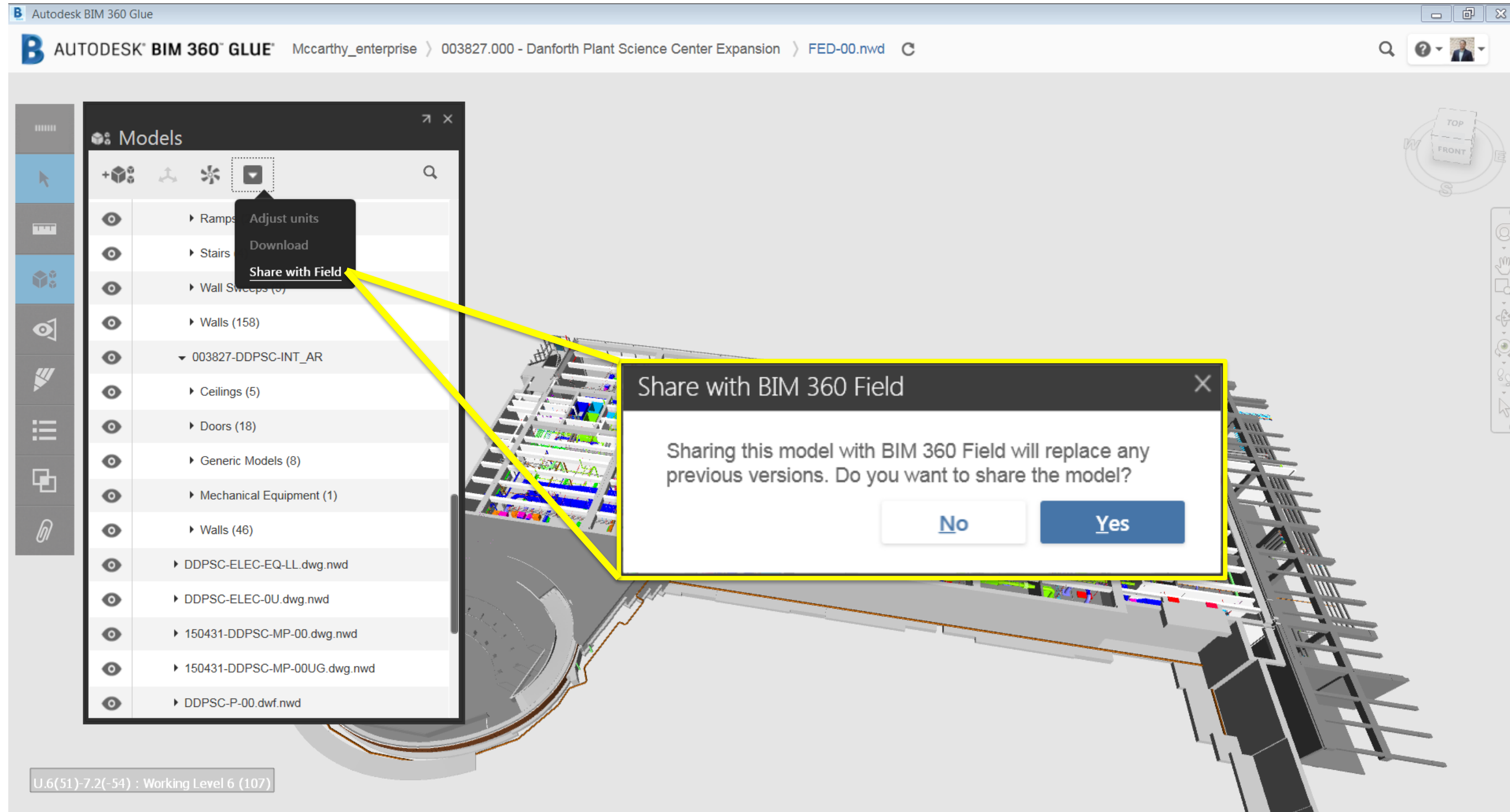
# Data Management Workflow

- Upload to Glue



# Data Management Workflow

- Share with Field





# Data Management Workflow

- Add Model to Field

The screenshot displays the Autodesk BIM 360 FIELD web application interface. The header shows the Autodesk logo, the text 'AUTODESK® BIM 360™ FIELD', and the project name '003827.000 - Danforth Plant Science Center Expansion'. The breadcrumb trail indicates the current view is 'Equipment'. The left sidebar contains navigation icons for Home, Models, Types, Statuses, Standard Properties, Custom Properties, and a search icon. The main content area has tabs for 'Models', 'Types', 'Statuses', 'Standard Properties', and 'Custom Properties'. A yellow arrow points from the '+ Add model from BIM 360 Glue' link to a modal dialog box titled 'Add model from BIM 360 Glue'. The dialog box contains a dropdown menu for 'Select BIM 360 Glue project' with the value 'Mccarthy\_enterprise > 003827.000 - Danforth Plant'. Below this is a list of models to add: FED-04, FED-01, FED-04, and FED-02. At the bottom of the dialog are 'Refresh', 'Cancel', and 'OK' buttons. The background shows a grid of model thumbnails with labels like 'FED-00 2 months ago', 'FED-04 2 months ago', and 'FED-03 a year ago'. A 'Feedback' button is visible in the bottom right corner.

# Data Management Workflow

- Equipment Mapping

AUTODESK® BIM 360™ FIELD
Home

003827.000 - Danforth Plant Science Center Expansion
Equipment

Models
Types
Statuses
Standard Properties
Custom Properties

### Manage Equipment Mapping

FED-04

Select sets

Select type

Select ID and properties

Select equipment properties

	Model objects	Date	
<input type="checkbox"/> Glycol Pump	2	a year ago	
<input type="checkbox"/> Energy Recovery Coil	1	a year ago	
<input type="checkbox"/> Heating Coil Pumps	2	a year ago	
<input type="checkbox"/> AHUs	2	2 months ago	
<input type="checkbox"/> Door Curtain Wall Sgl Glass (2)	1		
<input type="checkbox"/> Exhaust Fans	7	a year ago	

Cancel

Next

Feedback

Learn



# Data Management Workflow

- Equipment Mapping

The screenshot shows the Autodesk BIM 360 FIELD web application. The top header includes the Autodesk logo, the text 'AUTODESK® BIM 360™ FIELD', the project name '003827.000 - Danforth Plant Science Center Expansion', and a breadcrumb 'Equipment'. On the right, there are icons for email, a notification bell with '134', and a user profile 'SL'. Below the header is a navigation bar with tabs: 'Models', 'Types', 'Statuses', 'Standard Properties', and 'Custom Properties'. A left sidebar contains icons for various functions, with the 'Equipment Mapping' icon (a gear with a plus sign) highlighted in blue. The main content area is titled 'Manage Equipment Mapping (1 of 1)' with a subtitle 'FED-04 - AHUs'. It features a progress bar with four steps: 'Select sets', 'Select type', 'Select ID and properties' (which is the current step, highlighted with an orange bar), and 'Select equipment properties'. Below the progress bar, the 'Choose Mapping Mode' section has two radio button options: 'Standard: Identifier is Item::GUID' and 'Advanced: Select identifier and custom properties' (which is selected). At the bottom right of the main area are 'Back' and 'Next' buttons. A 'Learn' button is located on the right edge of the modal. A green 'Feedback' button is positioned at the bottom right of the entire interface.

# Data Management Workflow

- Equipment Mapping

The screenshot shows the Autodesk BIM 360 FIELD web application. The top header includes the Autodesk logo, the text 'AUTODESK® BIM 360™ FIELD', the project name '003827.000 - Danforth Plant Science Center Expansion', and a breadcrumb 'Equipment'. On the right, there are icons for email, notifications (134), and a user profile (SL).

A left sidebar contains navigation icons for Models, Types, Statuses, Standard Properties, Custom Properties, and a central gear icon for settings. Below these are icons for a calendar, a lock, and a 'Learn' button.

The main content area is titled 'Manage Equipment Mapping (1 of 1)' with a subtitle 'FED-04 - AHUs'. It features a progress bar with four steps: 'Select sets', 'Select type', 'Select ID and properties' (which is the active step, highlighted in orange), and 'Select equipment properties'.

Under the active step, the instruction 'Associate model properties with equipment properties' is displayed. A search bar is at the top of the list. The list contains several items with checkboxes: 'Section' (unchecked), 'Item Number' (checked), 'Elevation' (unchecked), 'Weight' (unchecked), and 'Points' (unchecked). To the right of the 'Item Number' row is a dropdown menu labeled 'Tag number'. Below the list, there is a checkbox for 'Show all categories' which is checked.

At the bottom right of the main area are 'Back' and 'Next' buttons. A green 'Feedback' button is located at the bottom center of the page.



# Data Management Workflow

## ■ Equipment Mapping

**AUTODESK® BIM 360™ FIELD** 003827.000 - Danforth Plant Science Center Expansion > Equipment

Search Equipment Close Add Edit Delete Print More Actions

Filter: All Equipment

Name: [Text Field]

Type: all

Description: [Text Field]

Location: all

Include sub-locations? ☒

Status: all

Custom Properties: Air Unit Fed From [Text Field]

Approved Submittal Number: [Text Field]

CFM: [Text Field]

Name	Barcode	Tag number	Asset identifier	Model	BIM Object ID	Submittal	Type
<input type="checkbox"/> Supply Air Valve 0012	SAV-0012	SAV-0012	c476c7de-5ab8-5fd2-81c0-83d18df8a689	FED-00	c476c7de-5ab8-5fc	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0030.2	SAV-0030.2	SAV-0030.2	164e3934-280b-57c3-b903-abb4cd029d9	FED-00	164e3934-280b-57	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0030A	SAV-0030A	SAV-0030A	d903f6a8-7793-580c-80fb-c361dcb52f18	FED-00	d903f6a8-7793-58	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0030B	SAV-0030B	SAV-0030B	ENDPOINTS: -2043.00,718.61,8449.13;-2043	FED-00	ENDPOINTS: -204	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0030C	SAV-0030C	SAV-0030C	467ddaa9-94f0-56f6-ab39-0c0851d36cc3	FED-00	467ddaa9-94f0-56f	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0030D	SAV-0030D	SAV-0030D	1e9f04d1-c43e-596f-8caf-7325d15d45d2	FED-00	1e9f04d1-c43e-59	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0032	SAV-0032	SAV-0032	8b044fae-5fb6-58ee-b659-385fa231d805	FED-00	8b044fae-5fb6-58e	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0036	SAV-0036	SAV-0036	69000000	FED-00	69000000	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0036.1	SAV-0036.1	SAV-0036.1	3838b00e-7f60-5f01-a04c-ae9eb8b1843e	FED-00	3838b00e-7f60-5f0	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1015.1	SAV-1015.1	SAV-1015.1	8cf5730f-4b7e-50e9-8431-e47b7bbe93b6	FED-01	8cf5730f-4b7e-50e	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1015.2	SAV-1015.2	SAV-1015.2	43d79433-0124-5c75-b057-49184bd5dbf6	FED-01	43d79433-0124-5c	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1015.3	SAV-1015.3	SAV-1015.3	1d4d0eb2-b51d-51b1-a4d2-afea36a07a3	FED-01	1d4d0eb2-b51d-51	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1015.4	SAV-1015.4	SAV-1015.4	0184ec8f-941e-5be5-a906-647ba583ce42	FED-01	0184ec8f-941e-5be	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1021A	SAV-1021A	SAV-1021A	8b9db038-cd47-5db5-83e4-fc67fb7aa82b	FED-01	8b9db038-cd47-5d	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1021B	SAV-1021B	SAV-1021B	5a061226-5c34-55ca-aa6d-d8df78b35888	FED-01	5a061226-5c34-55	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1025.2	SAV-1025.2	SAV-1025.2	dc615fe6-a74b-58d7-af45-859125094b9e	FED-01	dc615fe6-a74b-58c	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2015.1	SAV-2015.1	SAV-2015.1	7ca73b27-c1a3-5aeb-ae0f-5e5e1e6336bb	FED-02	7ca73b27-c1a3-5a	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2015.2	SAV-2015.2	SAV-2015.2	4e38378d-1654-51ec-9312-a9adf81ee902	FED-02	4e38378d-1654-51	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2015.3	SAV-2015.3	SAV-2015.3	04592d91-a6f3-5b82-b0ae-22192d731392	FED-02	04592d91-a6f3-5b	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2015.4	SAV-2015.4	SAV-2015.4	04219e49-7b9d-5b96-a133-7d6a1b3a072	FED-02	04219e49-7b9d-5b	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2015.5	SAV-2015.5	SAV-2015.5	425fc1f7-8063-54d5-b070-05079a32a938	FED-02	425fc1f7-8063-54d	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2017.1	SAV-2017.1	SAV-2017.1	2fec858f-a3cf-5ed2-9d6d-a6eef1f41f66	FED-02	2fec858f-a3cf-5ed2	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2017.2	SAV-2017.2	SAV-2017.2	fb5a8098-66c8-5be6-bf1d-ad1c1309cda9	FED-02	fb5a8098-66c8-5be	233100-003	VAV

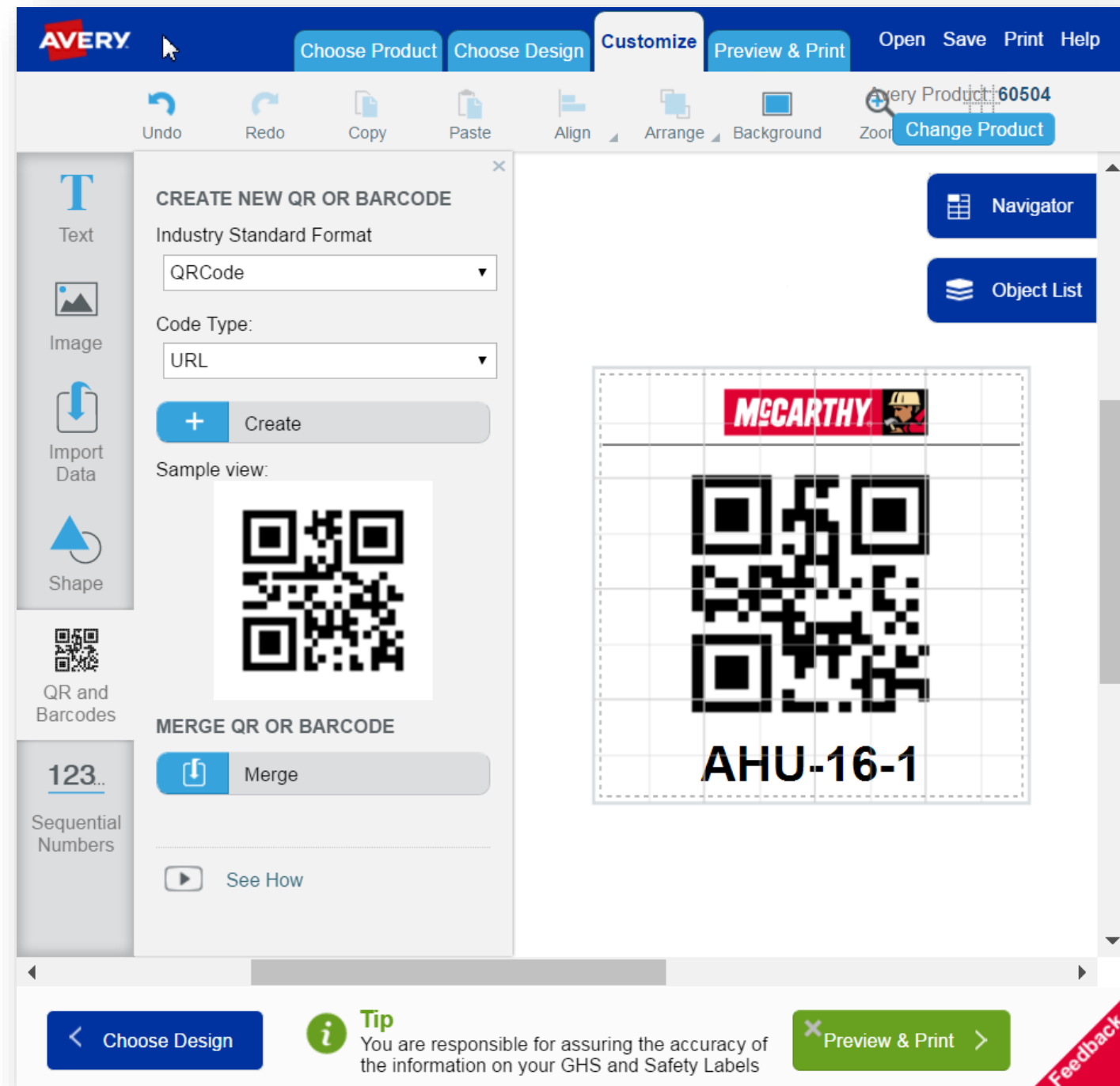
Filters: New Edit Remove 333 items Filter: All Equipment Show: 2000 Previous 1 Next

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# Data Management Workflow

- Barcoding





# Data Management Workflow

- Equipment Data & Attachments
  - Install date, Serial number, Model number, etc... on BIM 360 Field ipad app
- Warranty, Submittals, O&M's, etc... in Building Ops

The screenshot displays the Autodesk BIM 360 FIELD interface. The header shows the project name '003827.000 - Danforth Plant Science Center Expansion' and the section 'Equipment'. A sidebar on the left contains filters for Name, Type, Description, Location, and Status. The main area shows a table of equipment items, including 'Supply Air Valve' entries. A 'More Actions' dropdown menu is open, showing options like 'Import', 'Export All', 'Export All to Excel', 'Export to Building Ops', 'Add Library Files', 'Link Checklists', 'Edit All Items In List', and 'Customize View'. The bottom of the interface shows a footer with the Autodesk logo and copyright information.

Name	Asset identifier	Model	BIM Object ID	Submittal	Type
Supply Air Valve 0012	c476c7de-5ab8-5fd2-81c0-83d18df8a689	FED-00	c476c7de-5ab8-5fc	233100-003	VAV
Supply Air Valve 0030.2	164e3934-280b-57c3-b903-abb4cd029d9a	FED-00	164e3934-280b-57	233100-003	VAV
Supply Air Valve 0030A	d903f6a8-7793-580c-80fb-c361dcb52f18	FED-00	d903f6a8-7793-58	233100-003	VAV
Supply Air Valve 0030B	ENDPOINTS: -2043.00,718.61,8449.13;-2043	FED-00	ENDPOINTS: -204	233100-003	VAV
Supply Air Valve 0030C	467ddaa9-94f0-56f6-ab39-0c0851d36cc3	FED-00	467ddaa9-94f0-56f	233100-003	VAV
Supply Air Valve 0030D	1e9f04d1-c43e-596f-8caf-7325d15d45d2	FED-00	1e9f04d1-c43e-59f	233100-003	VAV
Supply Air Valve 0032	8b044fae-5fb6-58ee-b659-385fa231d805	FED-00	8b044fae-5fb6-58e	233100-003	VAV
Supply Air Valve 0036	69000000	FED-00	69000000	233100-003	VAV
Supply Air Valve 0036.1	3838b00e-7f60-5f01-a04c-ae9eb8b1843e	FED-00	3838b00e-7f60-5f0	233100-003	VAV
Supply Air Valve 1015.1	8cf5730f-4b7e-50e9-8431-e47b7b9e93b6	FED-01	8cf5730f-4b7e-50e	233100-003	VAV
Supply Air Valve 1015.2	43d79433-0124-5c75-b057-49184bd5dbf6	FED-01	43d79433-0124-5c	233100-003	VAV
Supply Air Valve 1015.3	1d4d0eb2-b51d-51b1-a4d2-af6a36a07a3	FED-01	1d4d0eb2-b51d-51	233100-003	VAV
Supply Air Valve 1015.4	0184ec8f-941e-5be5-a906-647ba583ce42	FED-01	0184ec8f-941e-5be	233100-003	VAV
Supply Air Valve 1021A	8b9db038-cd47-5db5-83e4-fc67fb7aa82b	FED-01	8b9db038-cd47-5d	233100-003	VAV
Supply Air Valve 1021B	5a061226-5c34-55ca-aa6d-d8df78b35888	FED-01	5a061226-5c34-55	233100-003	VAV
Supply Air Valve 1025.2	dc615fe6-a74b-58d7-af45-859125094b9e	FED-01	dc615fe6-a74b-58c	233100-003	VAV
Supply Air Valve 2015.1	7ca73b27-c1a3-5aeb-ae0f-5e5e1e6336bb	FED-02	7ca73b27-c1a3-5a	233100-003	VAV
Supply Air Valve 2015.2	4e38378d-1654-51ec-9312-a9adf81ee902	FED-02	4e38378d-1654-51	233100-003	VAV
Supply Air Valve 2015.3	04592d91-a6f3-5b82-b0ae-22192d731392	FED-02	04592d91-a6f3-5b	233100-003	VAV
Supply Air Valve 2015.4	04219e49-7b9d-5b96-a133-7d6a1b3a0726	FED-02	04219e49-7b9d-5b	233100-003	VAV
Supply Air Valve 2015.5	425fc1f7-8063-54d5-b070-05079a32a938	FED-02	425fc1f7-8063-54d	233100-003	VAV
Supply Air Valve 2017.1	2fec858f-a3cf-5ed2-9d6d-a6eef1f41f66	FED-02	2fec858f-a3cf-5ed2	233100-003	VAV
Supply Air Valve 2017.2	fb5a8098-66c8-5be6-bf1d-ad1c1309cda9	FED-02	fb5a8098-66c8-5be	233100-003	VAV

# Data Management Workflow

- Mass updates

B3F ID	Name	Barcode	Tag number	Asset identifier	Model	BIM Object	Type	Manufacturer	Description
0a63a00a-25fc-4392-8932-2556138b3396	Air Handling Unit 201	AHU-201	AHU-201	10673	FED-04_	10673	Air Handling Unit (AHU)	DAIKIN	Skyl
33c68326-9f5e-42ce-a229-79338319fcf4	Air Handling Unit 202	AHU-202	AHU-202	10674	FED-04_	10674	Air Handling Unit (AHU)	DAIKIN	Skyl
53685771-ad3b-477d-8c5e-aae983361bc8	Auditorium 1040	B-1040	B-1040	b6e515f7-873e-4950-ae19-383f6ffb831f			Rooms		Aud
36648605-3c2d-4599-977a-07fd505ed579	Autoclave	B1-02F	B1-02F				Laboratory Equipment	MARKET FORGE	Ow
dadc2096-8a95-46c1-b01d-1adbd552072d	Autoclave	B3-02F	B3-02F				Laboratory Equipment	MARKET FORGE	Ow
c70399af-04d3-44c9-82bb-14d5979b6df2	Autoclave	B0-07N	B0-07N				Laboratory Equipment	STERIS-AMSCO	Ow
00ac2c9d-de7d-45fd-af95-89454b0bff14	Autoclave	B0-11F	B0-11F				Laboratory Equipment	MARKET FORGE	Ow
d6ada67e-1afa-4984-aff1-298085ef33cb	Autoclave	B0-09E	B0-09E				Laboratory Equipment	PRIMUS	Ow
96ab4303-2267-44ce-aaf8-243212fdcd56	Autoclave	B2-04F	B2-04F				Laboratory Equipment	MARKET FORGE	Ow
b78405e5-bd2d-48fe-9960-afc51d018ef2	Autoclave	B2-02F	B2-02F				Laboratory Equipment	MARKET FORGE	Ow
54a8b333-6403-4746-819c-f3627585a882	Autoclave	B0-08N	B0-08N				Laboratory Equipment	STERIS-AMSCO	Ow
bb2a3a59-ad00-45cd-b7f4-c414da5c730a	Autoclave	B3-04F	B3-04F				Laboratory Equipment	MARKET FORGE	Ow
ca76ee9c-b6ba-478c-a105-702e5dac6cd7	Autoclave	B0-03E	B0-03E				Laboratory Equipment	STERIS	Ow
4511e3ff-0246-4a29-87f9-e8abfb60b28d	Autoclave	B0-10E	B0-10E				Laboratory Equipment	PRIMUS	Ow
ff445f03-ccfa-4cfb-b3ac-552996873bfb	Automatic Transfer Switch (FP)	FP-ATS	FP-ATS	8edb73f8-78b6-5570-9	FED-00	8edb73f8-	Automatic Transfer Switch	ASCO	
d5465b32-3cbb-4dc0-9148-4de1d8a23f3c	Automatic Transfer Switch EQ	ATS-EQ	ATS-EQ	c7f03546-ce25-526a-9	FED-00	c7f03546-	Automatic Transfer Switch	ASCO	ASC
31310cf6-9728-41ba-bd31-cd07026bdb2d	Automatic Transfer Switch EQE	ATS-EQE	ATS-EQE				Automatic Transfer Switch	ASCO	ASC
2aca3fba-7cbc-4554-a394-8ee785cc4f96	Automatic Transfer Switch LS	ATS-LS	ATS-LS	c7ca5d32-ff81-50f7-bb	FED-00	c7ca5d32-	Automatic Transfer Switch	ASCO	
3b6dc506-87fd-44c2-a295-56e526ce2ac4	Backup Generator	GENERATOR	GENERATOR				Generator	FABICK-CATEPILLAR	351
108df80e-7f7c-42b5-bd96-8b6f5fbf7ea8	Biosafety Cabinet BSC-4	B0-01E	B0-01E				Laboratory Equipment		Ow
b547c3a1-30b9-4b94-930a-5bd89c96d8d8	Biosafety Cabinet BSC-6	B0-02E	B0-02E				Laboratory Equipment		Ow
315e3e2e-008b-49d7-9efb-bd37cdbbd9cc	Bower Coil Unit 201	BCC-201	BCC-201	4f47dd06-35be-5104-a5b7-a3360673f6f0			Fan Coil Unit	International Environmental (IEC)	Belt
2145c57d-b994-4441-967f-53f0d10bbcc5	Bower Coil Unit 202	BCC-202	BCC-202	4f47dd06-35be-5104-a	FED-00	4f47dd06-	Fan Coil Unit	International Environmental (IEC)	Belt
89659eee-976c-47dd-abf5-56ad4751588f	Bower Coil Unit 203	BCC-203	BCC-203	db74c9b9-8e92-4f78-a	FED-00	db74c9b9-	Fan Coil Unit	International Environmental (IEC)	Belt
1a562030-f206-4ef9-878e-78b69d2af643	Bower Coil Unit 204	BCC-204	BCC-204	9a9fdb77-ad61-537c-a	FED-01	9a9fdb77-	Fan Coil Unit	International Environmental (IEC)	Belt
061788f1-e7be-412b-b67c-90542866d3ba	Bower Coil Unit 205	BCC-205	BCC-205	b574104d-af7d-55cb-9	FED-02	b574104d-	Fan Coil Unit	International Environmental (IEC)	Belt
623a78e5-8fe6-4fc7-9f52-fb45a9f7518d	Bower Coil Unit 206	BCC-206	BCC-206	95ec9d47-c782-55b3-b	FED-03	95ec9d47-	Fan Coil Unit	International Environmental (IEC)	Belt
7469656f-0bd3-4641-a358-07cdcf88d40a	Boiler	B-C4	B-C4				Boiler	CAMUS HYDRONICS LTD.	Gas





# Data Management Workflow

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Custom Properties

Air Unit Fed From

Approved Submittal Number

CFM

Name	Base	Number	Asset identifier	Model	BIM Object ID	Submittal	Type
<input type="checkbox"/> Supply Air Valve 0012	SAV-0012	SAV-0012	c476c7de-5ab8-5fd2-81c0-83d18df8a689	FED-00	c476c7de-5ab8-5fd2-81c0-83d18df8a689	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0030.2	SAV-0030.2	SAV-0030.2	164e3934-280b-57c3-b903-abb4cd029d9a	FED-00	164e3934-280b-57c3-b903-abb4cd029d9a	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0030A	SAV-0030A	SAV-0030A	d903f6a8-7793-580c-80fb-c361dcb52f18	FED-00	d903f6a8-7793-580c-80fb-c361dcb52f18	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0030B	SAV-0030B	SAV-0030B	ENDPOINTS: -2043.00,718.61,8449.13;-2043	FED-00	ENDPOINTS: -2043.00,718.61,8449.13;-2043	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0030C	SAV-0030C	SAV-0030C	467ddaa9-94f0-56f6-ab39-0c0851d36cc3	FED-00	467ddaa9-94f0-56f6-ab39-0c0851d36cc3	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0030D	SAV-0030D	SAV-0030D	1e9f04d1-c43e-596f-8caf-7325d15d45d2	FED-00	1e9f04d1-c43e-596f-8caf-7325d15d45d2	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0032	SAV-0032	SAV-0032	8b044fae-5fb6-58ee-b659-385fa231d805	FED-00	8b044fae-5fb6-58ee-b659-385fa231d805	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0036	SAV-0036	SAV-0036	69000000	FED-00	69000000	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 0036.1	SAV-0036.1	SAV-0036.1	3838b00e-7f60-5f01-a04c-ae9eb8b1843e	FED-00	3838b00e-7f60-5f01-a04c-ae9eb8b1843e	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1015.1	SAV-1015.1	SAV-1015.1	8cf5730f-4b7e-50e9-8431-e47b7bbe93b6	FED-01	8cf5730f-4b7e-50e9-8431-e47b7bbe93b6	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1015.2	SAV-1015.2	SAV-1015.2	43d79433-0124-5c75-b057-49184bd5dbf6	FED-01	43d79433-0124-5c75-b057-49184bd5dbf6	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1015.3	SAV-1015.3	SAV-1015.3	1d4d0eb2-b51d-51b1-a4d2-afea36a07a3	FED-01	1d4d0eb2-b51d-51b1-a4d2-afea36a07a3	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1015.4	SAV-1015.4	SAV-1015.4	0184ec8f-941e-5be5-a906-647ba583ce42	FED-01	0184ec8f-941e-5be5-a906-647ba583ce42	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1021A	SAV-1021A	SAV-1021A	8b9db038-cd47-5db5-83e4-fc67fb7aa82b	FED-01	8b9db038-cd47-5db5-83e4-fc67fb7aa82b	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1021B	SAV-1021B	SAV-1021B	5a061226-5c34-55ca-aa6d-d8df78b35888	FED-01	5a061226-5c34-55ca-aa6d-d8df78b35888	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 1025.2	SAV-1025.2	SAV-1025.2	dc615fe6-a74b-58d7-af45-859125094b9e	FED-01	dc615fe6-a74b-58d7-af45-859125094b9e	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2015.1	SAV-2015.1	SAV-2015.1	7ca73b27-c1a3-5aeb-aef0-5e5e1e6336bb	FED-02	7ca73b27-c1a3-5aeb-aef0-5e5e1e6336bb	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2015.2	SAV-2015.2	SAV-2015.2	4e38378d-1654-51ec-9312-a9adf81ee902	FED-02	4e38378d-1654-51ec-9312-a9adf81ee902	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2015.3	SAV-2015.3	SAV-2015.3	04592d91-a6f3-5b82-b0ae-22192d731392	FED-02	04592d91-a6f3-5b82-b0ae-22192d731392	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2015.4	SAV-2015.4	SAV-2015.4	04219e49-7b9d-5b96-a133-7d6a1b3a0726	FED-02	04219e49-7b9d-5b96-a133-7d6a1b3a0726	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2015.5	SAV-2015.5	SAV-2015.5	425fc1f7-8063-54d5-b070-05079a32a938	FED-02	425fc1f7-8063-54d5-b070-05079a32a938	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2017.1	SAV-2017.1	SAV-2017.1	2fec858f-a3cf-5ed2-9d6d-a6eef1f41f66	FED-02	2fec858f-a3cf-5ed2-9d6d-a6eef1f41f66	233100-003	VAV
<input type="checkbox"/> Supply Air Valve 2017.2	SAV-2017.2	SAV-2017.2	fb5a8098-66c8-5be6-bf1d-ad1c1309cda9	FED-02	fb5a8098-66c8-5be6-bf1d-ad1c1309cda9	233100-003	VAV

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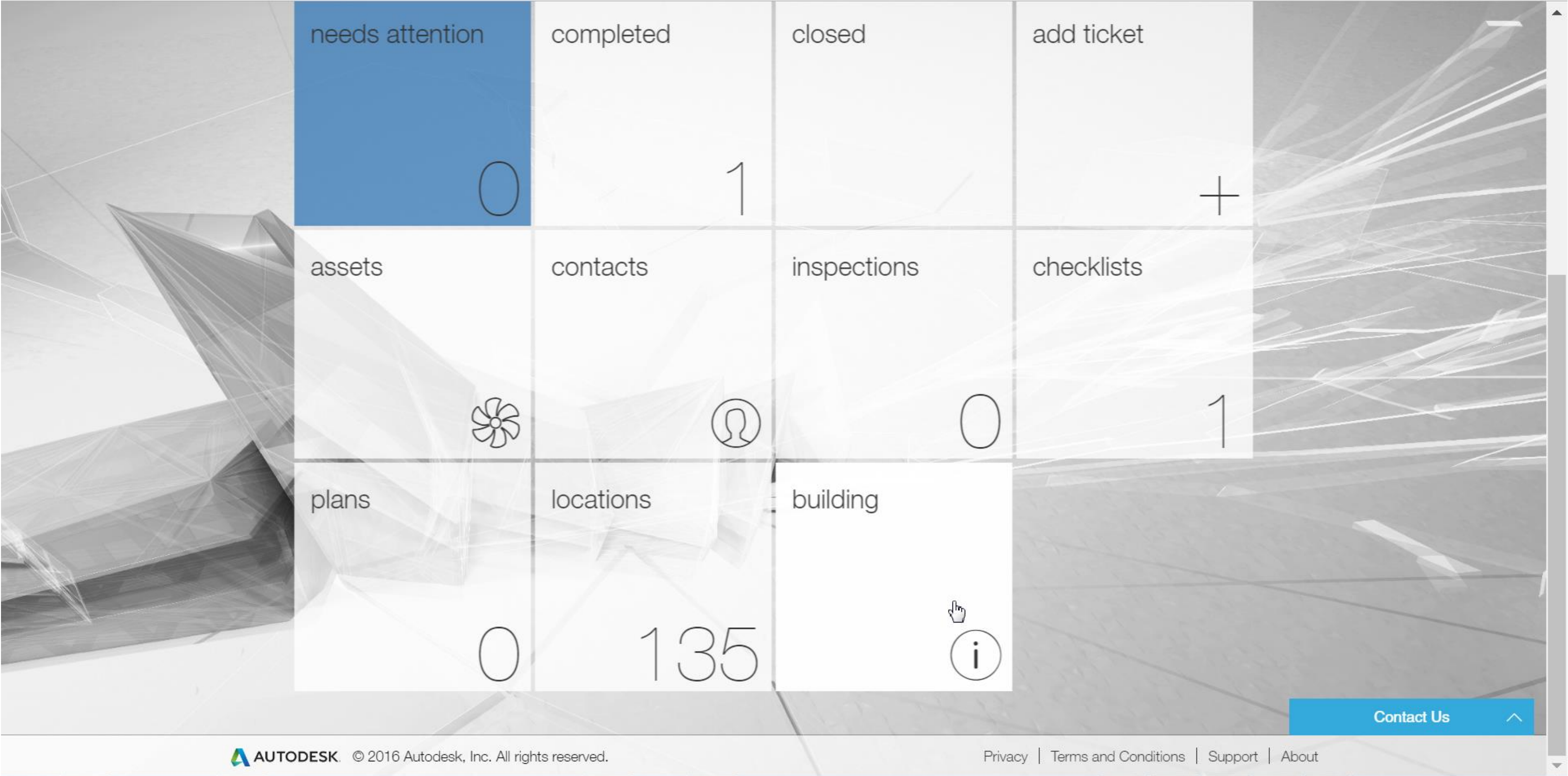
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# Data Management Workflow







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Connections

Electrically Fed From

GPM

Location Detail

Manufacturer

Name	Barcode	BIM Object ID	Submittal	Type	Manufacturer
<input type="checkbox"/> Air Handling Unit 201	AHU-201				
<input type="checkbox"/> Air Handling Unit 202	AHU-202				
<input type="checkbox"/> Auditorium 1040	B-1040				
<input type="checkbox"/> Autoclave	B0-08N			Laboratory Equipment	STERIS-AMSCO
<input type="checkbox"/> Autoclave	B0-07N			Laboratory Equipment	STERIS-AMSCO
<input type="checkbox"/> Autoclave	B0-11F			Laboratory Equipment	MARKET FORGE
<input type="checkbox"/> Autoclave	B1-02F			Laboratory Equipment	MARKET FORGE
<input type="checkbox"/> Autoclave	B0-09E	B0-09E		Laboratory Equipment	PRIMUS
<input type="checkbox"/> Autoclave	B3-02F	B3-02F		Laboratory Equipment	MARKET FORGE
<input type="checkbox"/> Autoclave	B0-03E	B0-03E		Laboratory Equipment	STERIS
<input type="checkbox"/> Autoclave	B2-04F	B2-04F		Laboratory Equipment	MARKET FORGE
<input type="checkbox"/> Autoclave	B0-10E	B0-10E		Laboratory Equipment	PRIMUS
<input type="checkbox"/> Autoclave	B3-04F	B3-04F		Laboratory Equipment	MARKET FORGE
<input type="checkbox"/> Autoclave	B2-02F	B2-02F		Laboratory Equipment	MARKET FORGE
<input type="checkbox"/> Automatic Transfer Switch (FP)	FP-ATS	FP-ATS	8edb73f8-78b6-5570-9d13-c4fee85d457a	FED-00	8edb73f8-78b6-5570-9d13-c4fee85d457a
<input type="checkbox"/> Automatic Transfer Switch EQ	ATS-EQ	ATS-EQ	c7f03546-ce25-526a-9788-fd2d17175f5e	FED-00	c7f03546-ce25-526a-9788-fd2d17175f5e
<input type="checkbox"/> Automatic Transfer Switch EQE	ATS-EQE	ATS-EQE			263213-001-00
<input type="checkbox"/> Automatic Transfer Switch LS	ATS-LS	ATS-LS	c7ca5d32-ff81-50f7-bbcb-bae497eca877	FED-00	c7ca5d32-ff81-50f7-bbcb-bae497eca877
<input type="checkbox"/> Backup Generator	GENERATOR	GENERATOR			263213-001-00
<input type="checkbox"/> Biosafety Cabinet BSC-4	B0-01E	B0-01E		Laboratory Equipment	
<input type="checkbox"/> Biosafety Cabinet BSC-6	B0-02E	B0-02E		Laboratory Equipment	
<input type="checkbox"/> Blower Coil Unit 201	BCC-201	BCC-201	4f47dd06-35be-5104-a5b7-a3360673f6f0	FED-00	4f47dd06-35be-5104-a5b7-a3360673f6f0
<input type="checkbox"/> Blower Coil Unit 202	BCC-202	BCC-202	f01765a7-b2c-a-5fa1-9dbd-1059abfcd78c		238216-001-00
<input type="checkbox"/> Blower Coil Unit 203	BCC-203	BCC-203	db74c9b9-8e92-4f78-a4d4-9d9be00d3d85	FED-00	db74c9b9-8e92-4f78-a4d4-9d9be00d3d85
<input type="checkbox"/> Blower Coil Unit 204	BCC-204	BCC-204	9a9fdb77-ad61-537c-a896-df316b47d42e	FED-01	9a9fdb77-ad61-537c-a896-df316b47d42e
<input type="checkbox"/> Blower Coil Unit 205	BCC-205	BCC-205	b574104d-af7d-55cb-94cf-8f47f674f46a	FED-02	b574104d-af7d-55cb-94cf-8f47f674f46a
<input type="checkbox"/> Blower Coil Unit 206	BCC-206	BCC-206	95ec9d47-c782-55b3-b6ab-fa495eb66c4b	FED-03	95ec9d47-c782-55b3-b6ab-fa495eb66c4b
<input type="checkbox"/> Boiler	B-C4	B-C4			235233.14-001
<input type="checkbox"/> Boiler	B-C5	B-C5			235233.14-001
<input type="checkbox"/> Boiler Pump serves B-C4	BP-C4	BP-C4			232123-002
<input type="checkbox"/> Boiler Pump serves B-C5	BP-C5	BP-C5			232123-002
<input type="checkbox"/> Chilled Water Pump for CH-4	CHP-4	CHP-4			232123-004
<input type="checkbox"/> Circulating Pump 1	PCP-1	PCP-1			221123-0001
<input type="checkbox"/> Circulating Pump 2	PCP-2	PCP-2			221123-0001
<input type="checkbox"/> Cold Lab B-2021.3	B-2021.3	B-2021.3	2988044	FED-02	2988044
<input type="checkbox"/> Cold Lab B-2021.4	B-2021.4	B-2021.4	2989077	FED-02	2989077
<input type="checkbox"/> Cold Lab B-3021.3	B-3021.3	B-3021.3	72564da1-a3f0-48a8-8645-49e001546cae	FED-03	72564da1-a3f0-48a8-8645-49e001546cae
<input type="checkbox"/> Cold Lab B-3021.4	B-3021.4	B-3021.4	72564da1-a3f0-48a8-8645-49e001546cad	FED-03	72564da1-a3f0-48a8-8645-49e001546cad
<input type="checkbox"/> Condenser Water Pump for CH-4	CP-4	CP-4			232123-001
<input type="checkbox"/> Cooling Tower 1	CT-1	CT-1			236513.13-001

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Status

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Custom Properties

Air Unit Fed From



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Approved Submittal Number



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CFM



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Connections



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Electrically Fed From



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GPM



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Location Detail



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Manufacturer

Name	Barcode	BIM Object ID	Submittal	Type	Manufacturer
<input type="checkbox"/> Air Handling Unit 201	AHU-201	99580b3f-940a-530e-5db1be66-1ebf-501e	237413-001-0	Air Handling Unit (AHU)	DAIKIN
<input type="checkbox"/> Air Handling Unit 202	AHU-202				
<input type="checkbox"/> Auditorium 1040	B-1040			Air Handling Unit (AHU)	DAIKIN
<input type="checkbox"/> Autoclave	B0-08N			Rooms	
<input type="checkbox"/> Autoclave	B0-07N			Laboratory Equipment	STERIS-AMSCO
<input type="checkbox"/> Autoclave	B0-11F			Laboratory Equipment	STERIS-AMSCO
<input type="checkbox"/> Autoclave	B1-02F			Laboratory Equipment	MARKET FORGE
<input type="checkbox"/> Autoclave	B0-09E			Laboratory Equipment	MARKET FORGE
<input type="checkbox"/> Autoclave	B0-09E			Laboratory Equipment	PRIMUS
<input type="checkbox"/> Autoclave	B3-02F			Laboratory Equipment	MARKET FORGE
<input type="checkbox"/> Autoclave	B0-03E			Laboratory Equipment	STERIS
<input type="checkbox"/> Autoclave	B2-04F			Laboratory Equipment	MARKET FORGE
<input type="checkbox"/> Autoclave	B0-10E			Laboratory Equipment	PRIMUS
<input type="checkbox"/> Autoclave	B3-04F			Laboratory Equipment	MARKET FORGE
<input type="checkbox"/> Autoclave	B2-02F			Laboratory Equipment	MARKET FORGE
<input type="checkbox"/> Automatic Transfer Switch (FP)	FP-ATS	8edb73f8-78b6-5570-9d13-c4fee85d457a	FED-00	Automatic Transfer Switch	ASCO
<input type="checkbox"/> Automatic Transfer Switch EQ	ATS-EQ	c7f03546-ce25-526a-9788-fd2d17175f5e	FED-00	Automatic Transfer Switch	ASCO
<input type="checkbox"/> Automatic Transfer Switch EQE	ATS-EQE		263213-001-00	Automatic Transfer Switch	ASCO
<input type="checkbox"/> Automatic Transfer Switch LS	ATS-LS	c7ca5d32-ff81-50f7-bbcb-bae497eca877	FED-00	Automatic Transfer Switch	ASCO
<input type="checkbox"/> Backup Generator	GENERATOR		263213-001-00	Generator	FABICK-CATEPILLAR
<input type="checkbox"/> Biosafety Cabinet BSC-4	B0-01E			Laboratory Equipment	
<input type="checkbox"/> Biosafety Cabinet BSC-6	B0-02E			Laboratory Equipment	
<input type="checkbox"/> Blower Coil Unit 201	BCC-201	4f47dd06-35be-5104-a5b7-a3360673f6f0	FED-00	Fan Coil Unit	International Environmental Controls
<input type="checkbox"/> Blower Coil Unit 202	BCC-202	f01765a7-b2ca-5fa1-9dbd-1059abfc d78c		Fan Coil Unit	International Environmental Controls
<input type="checkbox"/> Blower Coil Unit 203	BCC-203	db74c9b9-8e92-4f78-a4d4-9d9be00d3d85	FED-00	Fan Coil Unit	International Environmental Controls
<input type="checkbox"/> Blower Coil Unit 204	BCC-204	9a9fdb77-ad61-537c-a896-df316b47d42e	FED-01	Fan Coil Unit	International Environmental Controls
<input type="checkbox"/> Blower Coil Unit 205	BCC-205	b574104d-af7d-55cb-94cf-8f47f674f46a	FED-02	Fan Coil Unit	International Environmental Controls
<input type="checkbox"/> Blower Coil Unit 206	BCC-206	95ec9d47-c782-55b3-b6ab-fa495eb66c4b	FED-03	Fan Coil Unit	International Environmental Controls
<input type="checkbox"/> Boiler	B-C4		235233.14-001	Boiler	CAMUS HYDRONICS LTD
<input type="checkbox"/> Boiler	B-C5		235233.14-001	Boiler	CAMUS HYDRONICS LTD
<input type="checkbox"/> Boiler Pump serves B-C4	BP-C4		232123-002	Circulating Pump	ARMSTRONG
<input type="checkbox"/> Boiler Pump serves B-C5	BP-C5		232123-002	Circulating Pump	ARMSTRONG
<input type="checkbox"/> Chilled Water Pump for CH-4	CHP-4		232123-004	Chilled Water Pump	ARMSTRONG
<input type="checkbox"/> Circulating Pump 1	PCP-1		221123-0001	Circulating Pump	BELL & GOSSETT
<input type="checkbox"/> Circulating Pump 2	PCP-2		221123-0001	Circulating Pump	BELL & GOSSETT
<input type="checkbox"/> Cold Lab B-2021.3	B-2021.3	2988044	FED-02	Rooms	BIOCOLD ENVIRONMENTAL
<input type="checkbox"/> Cold Lab B-2021.4	B-2021.4	2989077	FED-02	Rooms	BIOCOLD ENVIRONMENTAL
<input type="checkbox"/> Cold Lab B-2021.3	B-2021.3	72564da1-a3f0-48a8-8645-49e001546cae	FED-03	Rooms	BIOCOLD ENVIRONMENTAL
<input type="checkbox"/> Cold Lab B-2021.4	B-2021.4	72564da1-a3f0-48a8-8645-49e001546cad	FED-03	Rooms	BIOCOLD ENVIRONMENTAL
<input type="checkbox"/> Condenser Water Pump for CH-4	CP-4		232123-001	Condenser Water Pump	ARMSTRONG
<input type="checkbox"/> Cooling Tower 1	CT-1		236513.13-001	Cooling Tower	MARLEY

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Auditorium 1040

Auditorium

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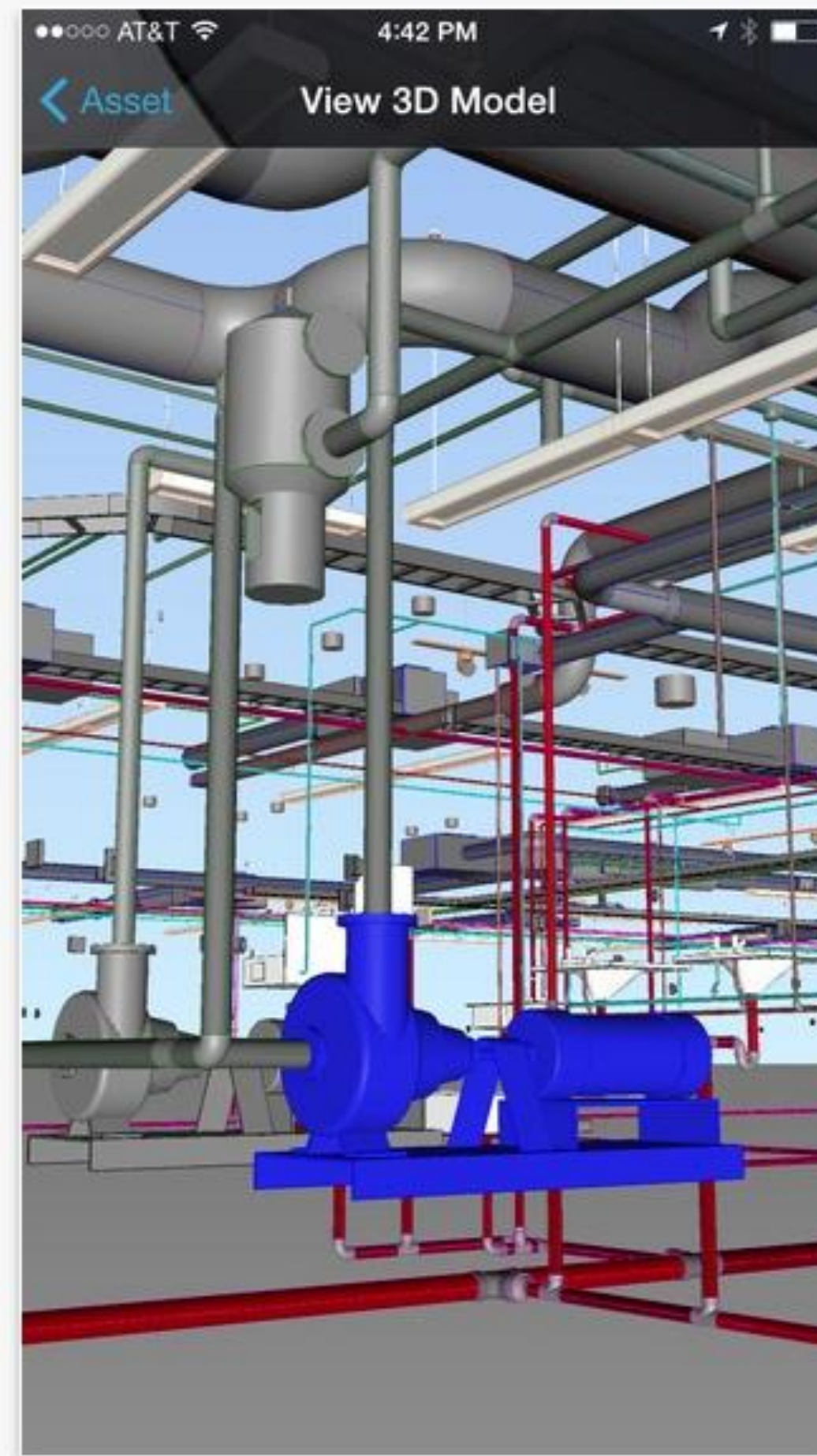
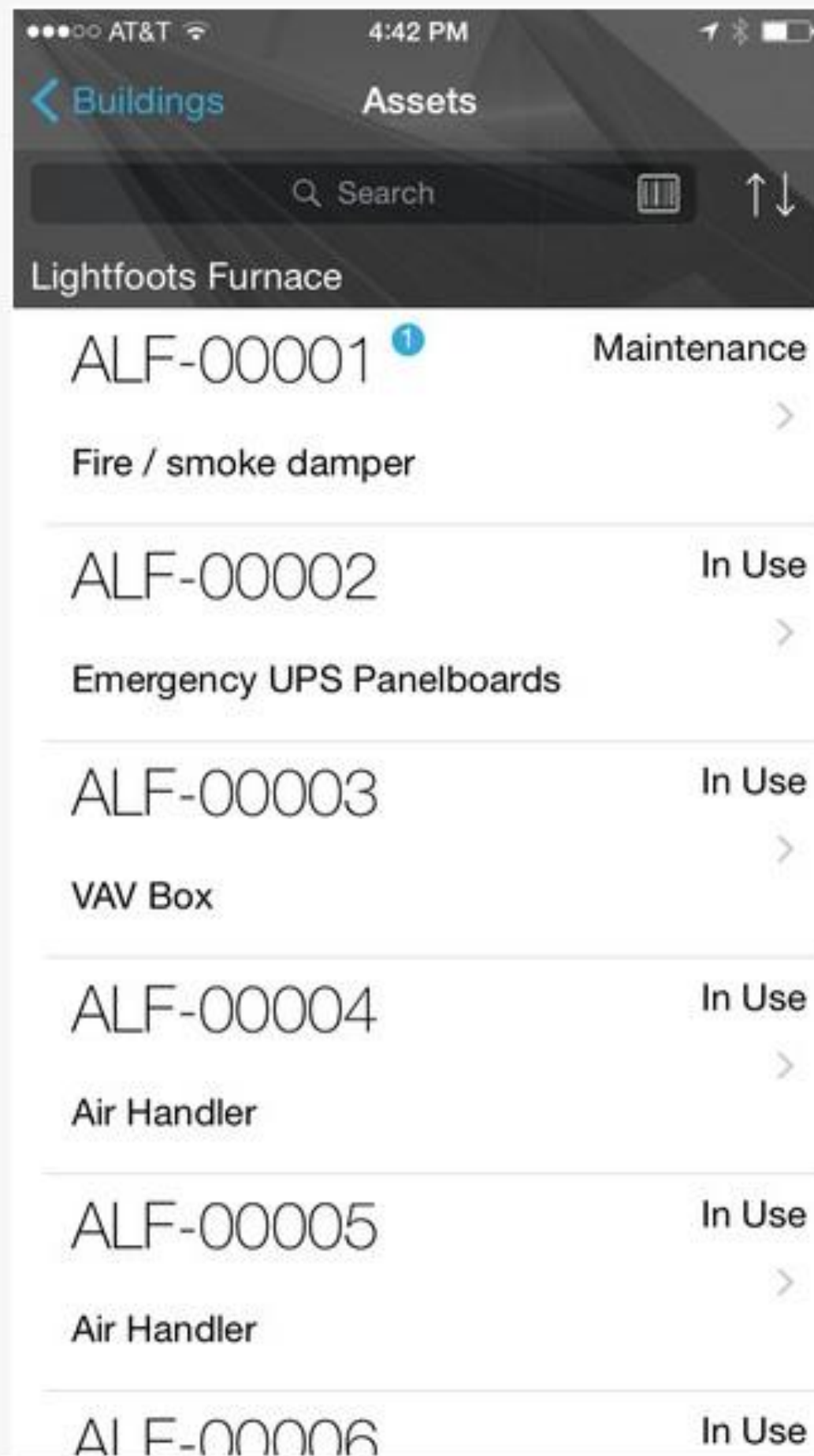
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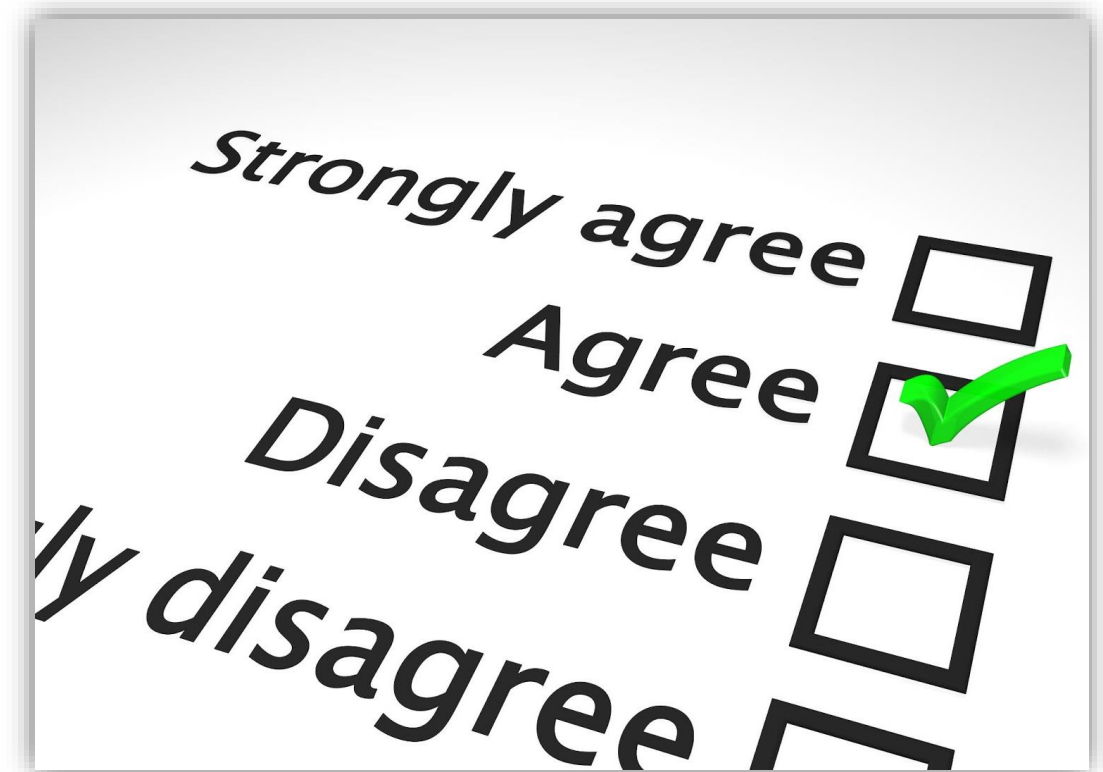
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