



**CS21864**

**BIM 360 Field to Building Ops—Lessons Learned in  
the Setup of a Project**

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# Class summary

An increase of technology and mobile devices on construction projects means we collect more data than ever. Clients are asking for access to this data as part of our turnover package in electronic format. Traditionally, our projects have not been set up at the beginning to facilitate this transfer of data. Simple things like Locations and Asset IDs are not in the contract documents until the end of the project. Also, owners don't know what they want or need. This class will follow a case-study format of a completed project started before the client had purchased Building Ops software. It will follow the process to set up BIM 360 Field software to build and utilize the Equipment matrix, and we'll cover how the initial assumptions and decisions that were made affected the turnover process. We will discuss our lessons learned and give time to focus attention on early to limit rework and reorganization of data to meet the turnover needs. This discussion will focus on the transition from BIM 360 Field software to Building Ops software, but it could be applied to most FAMS software. This session features BIM 360 Field and Building Ops.

# Key learning objectives

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

- Learn how to ask the right question about turnover to do a proper job setup
- Understand how the equipment matrix transfers from BIM 360 Field to Building Ops
- Learn how to engage and get participation from the project team in entering data
- Understand basic key elements needed by most clients for FAM

# About BOND



BOND

Many Strengths. **ONE BOND.**

## WHAT IS BOND?

BOND is the Northeast's premier full-service construction management and general contracting company offering coordinated building and self-performing civil & utility services.

### OUR MARKETS



Civil  
Infrastructure



District  
Energy &  
Power  
Generation



Education



Electric  
Transmission  
& Distribution



Healthcare



Gas  
Transmission  
& Distribution

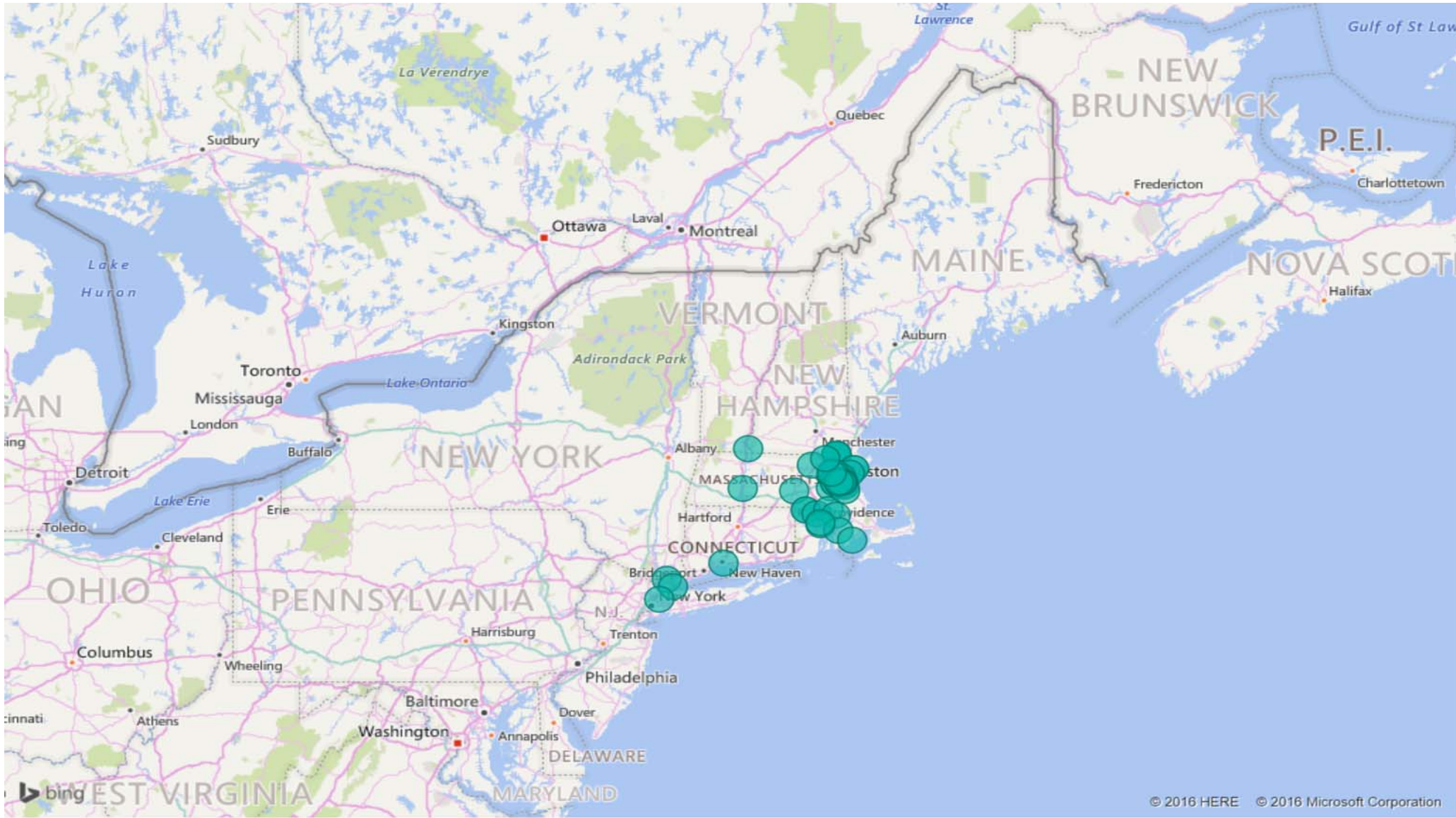


## FIRM OVERVIEW

We are built on a foundation of rock solid values: deep relationships, reliable execution, intelligent solutions and financial strength.

A fourth generation, privately held construction management and civil & utility general contracting firm, we are driven forward by listening to the needs of our clients. Our focus is on building a bond of trust that fuels each construction project we undertake. Guiding us since inception, BOND's commitment to excellence has resulted in delivering superior customer service.

Boston | Providence | New Haven | New York | Newark



## OUR CULTURE

For more than a century, we've taken great pride in building a family-driven firm culture with a true sense of caring for our employees and our community.

## OUR CAPABILITIES

- BIM, Virtual Design & Construction Technology
- Customized Project Delivery
- Historic Restoration
- Lean Construction
- Mitigation
- Preconstruction & Project Planning
- Proactive Communications Planning
- Quality Control Systems
- Safety
- Sustainable Construction

## EDUCATION

### Academic Facilities

- Athletic Complexes & Fields
- Classroom & Office Space
- Garages
- Historical Renovations
- Kitchens & Dining Halls
- Large Scale Renovations / Adaptive Reuse
- Lecture Halls & Performance Centers
- Residence Halls
- Science Centers & Laboratories
- Student Centers



*Harvard University, Tata Hall*

## HEALTHCARE

### Healthcare Facilities

- Cancer Centers
- Catheterization Laboratories
- Clinical Space
- Community Health Centers
- Linear Accelerators
- Medical Office Buildings
- MRI / CT Scan / Pet Scan
- Operating Rooms
- Pediatric Facilities
- Radiology Renovation
- Research Facilities

*BIDMC, Needham Cancer Center*



## DISTRICT ENERGY & POWER GENERATION

### District Energy

- Central Energy Plants
- Chiller / Boiler Plants
- Cogeneration / Trigeneration
- Thermal Distribution Piping

### Power Generation

- Microgrid Construction
- Power Plant Construction
- Maintenance and Upgrades
- In-Plant Outage and Non-Outage Civil Construction
- Solar and Wind Farms



*MIT, Boiler & Deaerator*

## ELECTRIC TRANSMISSION & DISTRIBUTION

- Electrical Substations – Brownfields
- Electrical Substations – Greenfields
- High Voltage Underground Transmission Systems
- High and Low Voltage Underground Distribution Systems
- Substation and Infrastructure Storm Hardening
- Existing Substation BIM Services & Constructability Analyses



*Northeast Utilities, Middletown – Norwalk  
345 kV Transmission Project*

## GAS TRANSMISSION & DISTRIBUTION

### Mainline

- Transmission Pipelines
- Valves / Reversals / Modifications
- Launchers & Receivers
- Integrity Management Program (IMP)
- Utility Systems

### Facilities

- Meter Stations
- Compressor Stations
- LNG + CNG Work

### Distribution

- Mains & Services



*Williams Company, Church Compressor Station*

## TECHNOLOGY

### BIM

BOND's use of BIM promotes the development of a common set of project goals, minimizing risk before construction begins in the field. Our shared 3D models facilitate a new level of transparency between BOND, our design & engineering partners, and our clients.

### Virtual Design & Construction

We offer an in-house Virtual Design & Construction (VDC) department to help our clients build more efficiently in today's world. Integrating BIM into company-wide technology platform, we streamline our estimates through On Screen Take-Off (OST), simulate our schedules through Primavera P6 Scheduling, provide critical path planning to sequence work, and deliver 3D field layouts with the latest GPS technology.

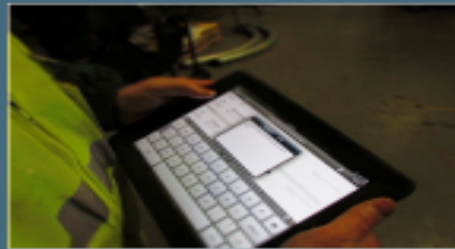
### Laser Scanning

Our in-house laser scanning capabilities provide the most accurate as-built documentation for fit-out and renovation work. We convert scan data into 3D Revit models, compatible with design and engineering models, to provide clash detection and logistics and safety planning services for our clients. During construction, laser scanning serves as a corporate quality control tool with a focus on proper installation and future facilities asset management.

## QUALITY CONTROL SYSTEMS

### Quality Control is in the Details

BOND's teams monitor every project element with an unyielding focus to deliver outstanding results. With our customized Project Quality Plans (PQP), our teams identify project risks early and develop proactive mitigation plans that facilitate a smooth construction process. Once a project is delivered, we ensure client satisfaction by providing inspection walkthroughs, warranties, and facilities asset management services.



### Leveraging Technology to Monitor Quality

BOND's tablet-based BIM360 tracking system provides our teams with quality control checklists to track progress and flag risks. Its mobile cloud-based nature enables real-time information-sharing among all owner, design, engineering, and subcontractor team members. The result: improved communication, quick resolutions to deficiencies in the field, and long-lasting, high quality projects that exceed our clients' expectations.

# Our History of The Equipment Matrix

- Institutional Client Requested full FMS database compiled during construction for turn over.
- Generic and Expansive Guidelines were given.
- Equipment was to be barcoded
- Standardized Asset Numbers were not provided

# Results

- 400+ Worker Hours Spent Setting up and Populating Equipment Matrix
- Design Changes altered previous locations making information inaccurate.
- Design Information vs. As-built differences.

# Information Overload

- 664 Pieces of Equipment
- 256 Equipment Categories
- 1800 Attachments

# Unmanageable Database-Too Many Types

Name	<input type="checkbox"/>	Label	Type	Default Value	Source
All Types	<input type="checkbox"/>	02 - Classification	Text		Custom
Electrical-DP	<input type="checkbox"/>	04 - Building Name	Text		Custom
Electrical-GEN	<input type="checkbox"/>	06 - Floor	Text		Custom
Electrical-PB	<input type="checkbox"/>	08 - Room	Text		Custom
Electrical-T	<input type="checkbox"/>	12 - A/E Drawing Number Reference	Text		Custom
Electrical-US	<input type="checkbox"/>	14 - Actual Service/Area Served	Text		Custom
Fire Protection-FP	<input type="checkbox"/>	18 - Signed Off Coordination Drawings Submittal Number	Text		Custom
Fire Protection-JP	<input type="checkbox"/>	20 - As-built Drawing and/or 3D Model Submittal Number	Text		Custom
Lighting Fixtures-LITE	<input type="checkbox"/>	22 - Purchase Date	Text		Custom
Mechanical-AHU	<input type="checkbox"/>	24 - Purchase Price	Numeric		Custom
Mechanical-AS	<input type="checkbox"/>	26 - Date Installed	Date		Custom
Mechanical-B	<input type="checkbox"/>	28 - Date of Initial Operation	Date		Custom
Mechanical-BC	<input type="checkbox"/>	30 - Date of Substantial Completion	Date		Custom
Mechanical-BEF	<input type="checkbox"/>	32 - Warranty Expiration	Date		Custom
Mechanical-CUH	<input type="checkbox"/>	34 - Submittal	Text		Custom
Mechanical-DF	<input type="checkbox"/>	36 - Operation and Maintenance Manual	Text		Custom
Mechanical-EF	<input type="checkbox"/>	38 - Startup	Text		Custom
Mechanical-ET	<input type="checkbox"/>	40 - TAB	Text		Custom
Mechanical-FCU	<input type="checkbox"/>	42 - Controls Checkout	Text		Custom
Mechanical-FOP	<input type="checkbox"/>	44 - Sequence of Operation	Text		Custom
Mechanical-FOT	<input type="checkbox"/>	46 - Electrical Testing	Text		Custom
Mechanical-FPP	<input type="checkbox"/>	48 - CX Report	Text		Custom
Mechanical-HX	<input type="checkbox"/>	50 - Manufacturer - Actual	Text		Custom
Mechanical-P	<input type="checkbox"/>	52 - Manufacturer - Specified	Text		Custom
Mechanical-RAD	<input type="checkbox"/>	54 - Model/Part Number - Actual	Text		Custom
Mechanical-RF	<input type="checkbox"/>	56 - Model/Part Number - Specified	Text		Custom
Mechanical-SA	<input type="checkbox"/>	58 - Serial Number	Text		Custom
Mechanical-SF	<input type="checkbox"/>	60 - Manufacturer's Local Representative Contact Information	Text		Custom
Mechanical-VAV	<input type="checkbox"/>	62 - Manufacturer's Contact Information	Text		Custom
Other-Other	<input type="checkbox"/>	64 - Service Firm Contact Information	Text		Custom
Plumbing-BFP	<input type="checkbox"/>	68 - Maintenance Frequency	Text		Custom
Plumbing-BP	<input type="checkbox"/>	70 - Maintenance Procedures/Tasks	Text		Custom
Plumbing-CP	<input type="checkbox"/>	72 - Power Source	Text		Custom
Plumbing-DCVA	<input type="checkbox"/>	999 - Navisworks ID	Text		Custom

45 in <



## What We Learned

- Design Team and Construction team do not always engage Facilities Team.
- Too Much Information/custom fields
- Loaded Unnecessary Items (Light Fixtures, panelboards, terminal boxes)
- Single Source of Input
- Started Too Late in the Project
- Equipment Specific QR Codes were very time consuming to place.
- Custom Fields Contained Redundant Information found elsewhere.

## Attempt #2 – Intended as Proof of Concept

- Scaled back custom fields
- Focused on mechanical equipment with moving parts only
- Started building matrix during excavation
- Created Random, Non-specific QR Codes
- Started Populating matrix as equipment was being installed.

# The Question



# Advantages of Using Field To Ops Transfer

# “Traditional” O&M Turnover

1. Hard paper copies in binders.
2. CD, DVD and flash drives.
3. Static documents.
4. Currently in most project Specifications



# Owner Filing Systems



# Document “Storage”

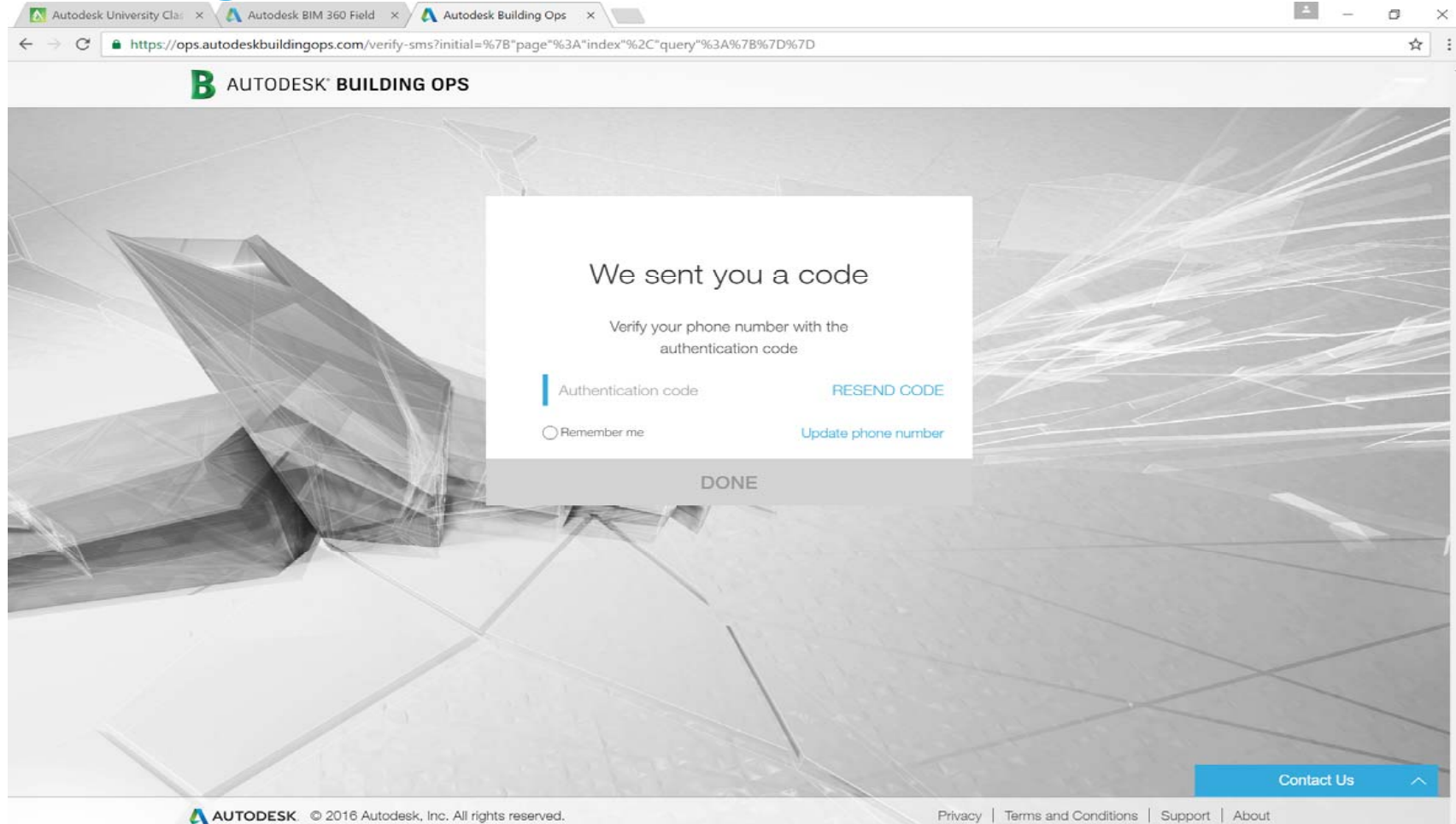


# End Result- Waste



- How is your business losing money to disorganization?
- A P-Touch survey conducted in 2010 found that employees looking for misplaced items costs about \$89 billion annually, and **accounts for almost a full week of productivity loss per employee.**
- <https://www.foothillssystems.com/a/5-ways-business-losing-money-disorganization/>

# Building Ops Improves this process




Autodesk University Cla x Autodesk BIM 360 Field x Autodesk Building Ops x

https://audemoproject.ops.autodeskbuildingops.com/buildings/1284cf5-7ae9-4aaf-8b7e-fa6f96a596ba

**AUTODESK BUILDING OPS** BUY NOW

AU Building 2016 > Details



### AU Building 2016

**address**  
 N Las Vegas Blvd  
 Street (optional)  
 Las Vegas  
 NV ZIP  
[United States >](#)

**Revit and BIM 360 Field export code**  
[GENERATE EXPORT CODE](#)

**API token**  
[GENERATE API TOKEN](#)

**Building Configuration**

**building visibility**  
[show this building to occupants >](#)

**building prefix**  
 AB [✎](#)

**floors**  
[Add >](#)

**history**  
[View >](#)

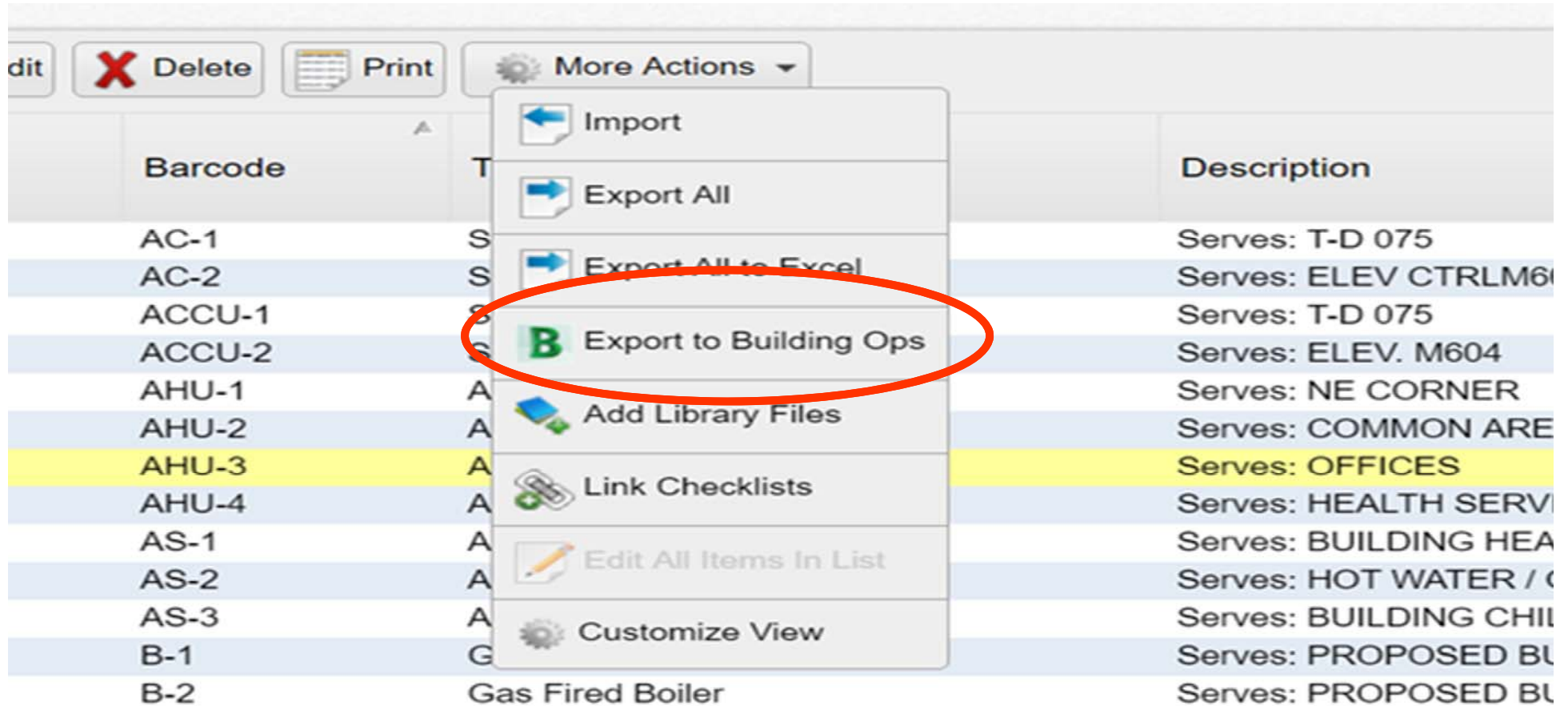
Contact Us [^](#)

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# Request and Receive Export Code

The screenshot shows a web browser window with the URL <https://audemoproject.ops.autodeskbldingops.com/buildings/1284cf5-7ae9-4aaf-8b7e-fa6f96a596ba>. The page header includes the Autodesk Building Ops logo and a 'BUY NOW' button. The breadcrumb trail is 'AU Building 2016 > Details'. The main content area features a large image of a building facade with a grid pattern. To the right of the image, the title 'AU Building 2016' is displayed. Below the title, there are several sections: 'address' (N Las Vegas Blvd, Street (optional), Las Vegas, NV, ZIP, United States >), 'building visibility' (show this building to occupants >), 'floors' (Add >), 'Revit and BIM 360 Field export code' (2VT7GXVKR9KM2D9F, REGENERATE, This code expires Today), 'API token' (GENERATE API TOKEN), 'building prefix' (AB, edit icon), and 'history' (View >). A 'Building Configuration' section is partially visible on the left. The footer contains the Autodesk logo, copyright information (© 2016 Autodesk, Inc. All rights reserved.), and links for Privacy, Terms and Conditions, Support, and About. A 'Contact Us' button is located in the bottom right corner.

# Select Export to Building Ops From Equipment



The screenshot shows a software interface with a table of equipment. The table has columns for 'Barcode', 'Type', and 'Description'. A 'More Actions' dropdown menu is open, showing several options. The 'Export to Building Ops' option is highlighted with a red circle.

Barcode	Type	Description
AC-1	S	Serves: T-D 075
AC-2	S	Serves: ELEV CTRLM60
ACCU-1	S	Serves: T-D 075
ACCU-2	S	Serves: ELEV. M604
AHU-1	A	Serves: NE CORNER
AHU-2	A	Serves: COMMON ARE
AHU-3	A	Serves: OFFICES
AHU-4	A	Serves: HEALTH SERV
AS-1	A	Serves: BUILDING HEA
AS-2	A	Serves: HOT WATER / C
AS-3	A	Serves: BUILDING CHIL
B-1	G	Serves: PROPOSED BU
B-2	G	Serves: PROPOSED BU

More Actions dropdown menu options:

- Import
- Export All
- Export All to Excel
- Export to Building Ops**
- Add Library Files
- Link Checklists
- Edit All Items In List
- Customize View

Search Equipment [Close] + Add Edit Delete Print More Actions

Filter: MEP

Name: [ ]

Type: all

Description: [ ]

Location: all

Include sub-locations?

Status: all

Custom Properties

01) Installed

From: [ ] To: [ ]

02) Piped

From: [ ] To: [ ]

03) Tested

Export equipment to Autodesk Building Ops

Enter your export code from the Building Information Page in Autodesk Building Ops

Export Code [ ] Done

Name	Type	Location Path
AC-1	AC	East Building>Ground Floor>075 Tele
AC-2	AC	South Building>Mech. Level>M604 Me
AC-3	AC	East Building>Roof
AC-4	AC	East Building>Roof
AHU-1	AHU	East Building>Ground Floor>097 Mec
AHU-2	AHU	North Building>Mech. Level>M602 Me
AHU-3	AHU	East Building>Mech. Level>M603 Mec
AHU-4	AHU	South Building>Mech. Level>M604 Me
AS-1	AS	East Building>Ground Floor>097 Mec
AS-2	AS	Serves: HOT WATER / GLYCOL SYSTEM
AS-3	AS	Serves: BUILDING CHILLED WATER
B-1	B	Serves: PROPOSED BUILDING
B-2	B	Serves: PROPOSED BUILDING
B-3	B	Serves: PROPOSED BUILDING
B-4	B	Serves: PROPOSED BUILDING
CH-1	CH	Serves: CHILLED WATER SYSTEM
CH-2	CH	Serves: CHILLED WATER SYSTEM
CUH-2	CUH	Serves: VESTIBULE 070
DWBP-1A/B/C	DWBP	Serves: BUILDING
FCU-1	FCU	FLOOR 6A, ROOM Unit 1
FCU-1	FCU	FLOOR 6A, ROOM Unit 2
FCU-1	FCU	FLOOR 4A, ROOM Unit 1
FCU-1	FCU	FLOOR 4A, ROOM Unit 2
FCU-1	FCU	FLOOR 6B, ROOM Unit 1
FCU-1	FCU	FLOOR 6B, ROOM Unit 2
FCU-1	FCU	FLOOR 6D, ROOM Unit 1
FCU-1	FCU	FLOOR 6D, ROOM Unit 2
FCU-1	FCU	FLOOR 4B, ROOM Unit 1
FCU-1	FCU	FLOOR 4B, ROOM Unit 2

Filters: New Edit Remove 1 of 393 checked Filter: MEP Show: 2000 Previous 1 Next

Feedback [ ] [ ] [ ]

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<https://bim360field.autodesk.com/equipment#>

Search Equipment [Close] + Add [More Actions]

Filter: All Equipment

Name: [ ]

Type: all

Description: [ ]

Location: all

Include sub-locations?

Status: all

Custom Properties

02 - Classification: [ ]

04 - Building Name: [ ]

06 - Floor: [ ]

08 - Room: [ ]

Export equipment to Autodesk Building Ops

This will export all equipment in your current search to **Boston Building**

**Export**

Name	Type	Description	Location Path	Status
AS-1	AS		Boiler Room	Spec
VAV-1	VAV		132S/134S (E-WW-	Order
FCL-1	FCL		obby West B	Insta
SP-1	SP		Zone C>Basement>Rooms>LW0 - Lobby W	Order
SP-2	SP	Elevator Sump Pump-		Order
SP-3	SP	Elevator Sump Pump-		Order
SP-4	SP	Elevator Sump Pump-		Order
AHU-2	AHU	Air Handling Unit-M0.23 - Main Mechanic	Zone A>Basement>Rooms>M0.23 - Main M	Insta
SP-5	SP	Elevator Sump Pump-		Order
AHU-3	AHU	Air Handling Unit-M0.23 - Main Mechanic	Zone A>Basement>Rooms>M0.23 - Main M	Insta
EF-1	EF	Exhaust Fan-M0.29 - Main Electrical	Zone C>Basement>Rooms>M0.29 - Main E	Order
SE-1	SE	Duplex Sewage Ejector Pump-M0.17 - D	Zone B>Basement>Rooms>M0.17 - Domes	Order
SE-1	SE	Duplex Sewage Ejector Pump-M0.24 - B	Zone B>Basement>Rooms>M0.24 - Trash &	Order
DF-1	DF	Dryer Exhaust Fan-Roof	Zone B>Roof	Order
SF-1	SF	Stair Pressurization Fan-Roof	Zone A>Roof	Order
SE-1	SE	Duplex Sewage Ejector Pump-M0.08 - P	Zone A>Basement>Rooms>M0.08 - Pump f	Order
SF-2	SF	Stair Pressurization Fan-M0.23 - Main M	Zone A>Basement>Rooms>M0.23 - Main M	Order
FPP-1	FPP	Pump-M0.23 - Main Mechanical	Zone A>Basement>Rooms>M0.23 - Main M	Order
SE-1	SE	Duplex Sewage Ejector Pump-M0.17 - D	Zone B>Basement>Rooms>M0.17 - Domes	Order
FPP-2	FPP	Pump-M0.23 - Main Mechanical	Zone A>Basement>Rooms>M0.23 - Main M	Order
FPP-3	FPP	Pump-M0.23 - Main Mechanical	Zone A>Basement>Rooms>M0.23 - Main M	Order
FPP-4	FPP	Pump-M0.23 - Main Mechanical	Zone A>Basement>Rooms>M0.23 - Main M	Order
SA-1	SA	Duct Silencer-M0.23 - Main Mechanical	Zone A>Basement>Rooms>M0.23 - Main M	Order
SA-2	SA	Duct Silencer-M0.23 - Main Mechanical	Zone A>Basement>Rooms>M0.23 - Main M	Order
SA-3	SA	Duct Silencer-M0.23 - Main Mechanical	Zone A>Basement>Rooms>M0.23 - Main M	Order
SA-4	SA	Duct Silencer-M0.23 - Main Mechanical	Zone A>Basement>Rooms>M0.23 - Main M	Order

Filters: [New] [Edit] [Remove] 50 items Filter: All Equipment Show: 50 [Previous] 1 [Next]

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Feedback [ ] [ ] [ ]

Search Equipment

Filter: MEP

Name

Type: all

Description

Location: all

Include sub-locations?

Status: all

Custom Properties

01) Installed

From:

To:

02) Piped

From:

To:

03) Tested

Export equipment to Autodesk Building Ops

You will receive an email when the export completes

Close

Name	Description	Serves	Location Path
<input type="checkbox"/> AC-1	Air Handling Unit	Serves: NE CORNER	East Building>Ground Floor>075 Tele
<input type="checkbox"/> AC-2	Air Handling Unit	Serves: COMMON AREAS	South Building>Mech. Level>M604 Me
<input type="checkbox"/> ACC-1	Air Handling Unit	Serves: COMMON AREAS	East Building>Roof
<input type="checkbox"/> ACC-2	Air Handling Unit	Serves: COMMON AREAS	East Building>Roof
<input type="checkbox"/> AHU-1	Air Handling Unit	Serves: NE CORNER	East Building>Ground Floor>097 Mec
<input type="checkbox"/> AHU-2	Air Handling Unit	Serves: COMMON AREAS	North Building>Mech. Level>M602 Me
<input checked="" type="checkbox"/> AHU-3	Air Handling Unit	Serves: OFFICES	East Building>Mech. Level>M603 Mec
<input type="checkbox"/> AHU-4	Air Handling Unit	Serves: HEALTH SERVICES	South Building>Mech. Level>M604 Me
<input type="checkbox"/> AS-1	Air Separator	Serves: BUILDING HEATING HOT WATER	East Building>Ground Floor>097 Mec
<input type="checkbox"/> AS-2	Air Separator	Serves: HOT WATER / GLYCOL SYSTEM	East Building>Ground Floor>097 Mec
<input type="checkbox"/> AS-3	Air Separator	Serves: BUILDING CHILLED WATER	East Building>Ground Floor>097 Mec
<input type="checkbox"/> B-1	Gas Fired Boiler	Serves: PROPOSED BUILDING	East Building>Ground Floor>097 Mec
<input type="checkbox"/> B-2	Gas Fired Boiler	Serves: PROPOSED BUILDING	East Building>Ground Floor>097 Mec
<input type="checkbox"/> B-3	Gas Fired Boiler	Serves: PROPOSED BUILDING	East Building>Ground Floor>097 Mec
<input type="checkbox"/> B-4	Gas Fired Boiler	Serves: PROPOSED BUILDING	East Building>Ground Floor>097 Mec
<input type="checkbox"/> CH-1	Chiller	Serves: CHILLED WATER SYSTEM	East Building>Roof
<input type="checkbox"/> CH-2	Chiller	Serves: CHILLED WATER SYSTEM	East Building>Roof
<input type="checkbox"/> CUH-2	Cabinet Unit Heater	Serves: VESTIBULE 070	South Building>Ground Floor>070 Ver
<input type="checkbox"/> DWBP-1A/B/C	Domestic Water Booster Pump	Serves: BUILDING	East Building>Ground Floor>082 Plun
<input type="checkbox"/> FCU-1	Fan Coil Unit	FLOOR 6A, ROOM Unit 1	North Building>Level 1>101
<input type="checkbox"/> FCU-1	Fan Coil Unit	FLOOR 6A, ROOM Unit 2	North Building>Level 1>101
<input type="checkbox"/> FCU-1	Fan Coil Unit	FLOOR 4A, ROOM Unit 1	North Building>Level 1>104
<input type="checkbox"/> FCU-1	Fan Coil Unit	FLOOR 4A, ROOM Unit 2	North Building>Level 1>104
<input type="checkbox"/> FCU-1	Fan Coil Unit	FLOOR 6B, ROOM Unit 1	North Building>Level 1>103
<input type="checkbox"/> FCU-1	Fan Coil Unit	FLOOR 6B, ROOM Unit 2	North Building>Level 1>103
<input type="checkbox"/> FCU-1	Fan Coil Unit	FLOOR 6D, ROOM Unit 1	North Building>Level 1>105
<input type="checkbox"/> FCU-1	Fan Coil Unit	FLOOR 6D, ROOM Unit 2	North Building>Level 1>105
<input type="checkbox"/> FCU-1	Fan Coil Unit	FLOOR 4B, ROOM Unit 1	North Building>Level 1>106
<input type="checkbox"/> FCU-1	Fan Coil Unit	FLOOR 4B, ROOM Unit 2	North Building>Level 1>106

Filters: New Edit Remove 1 of 393 checked Filter: MEP

Show: 2000 Previous 1 Next

Feedback

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# The Answer

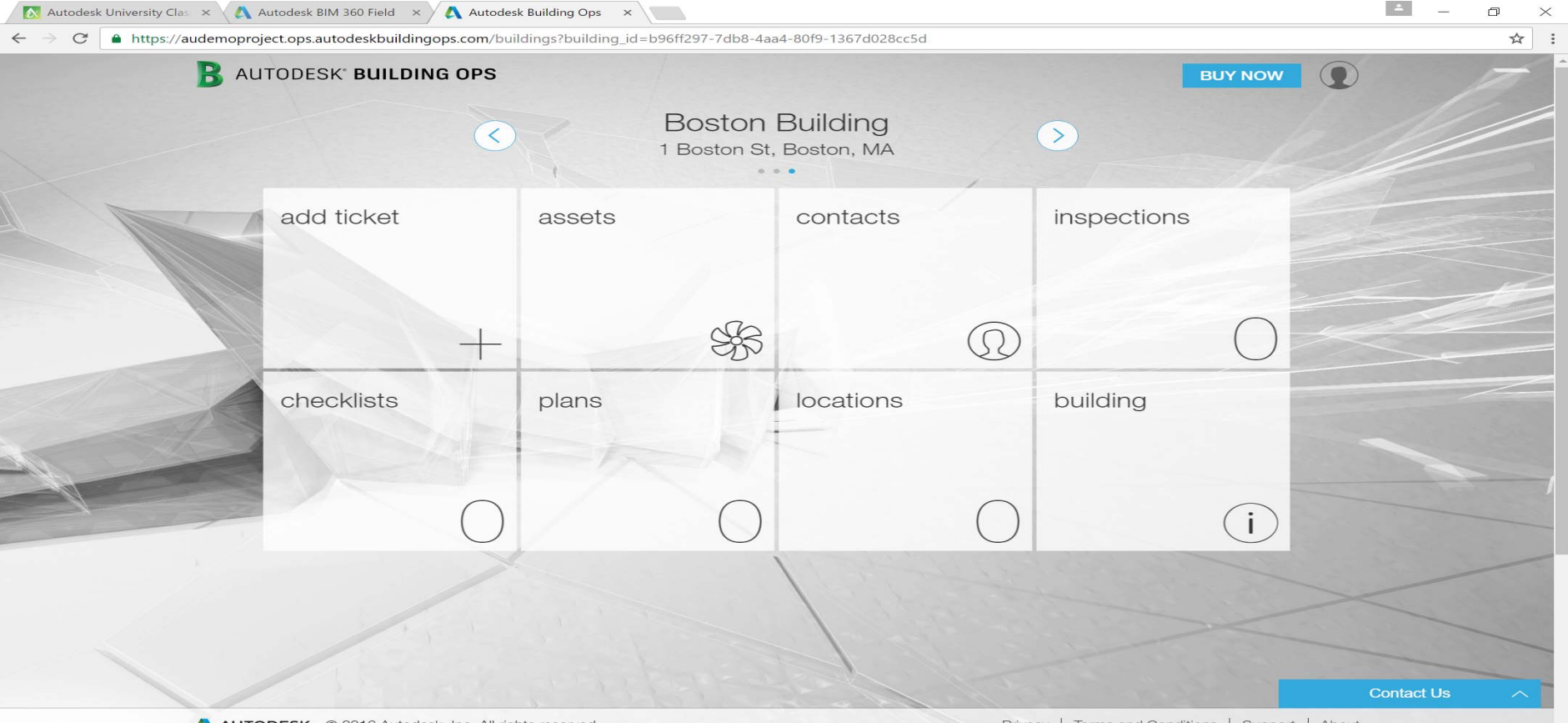


# First/Trial Data Export

The screenshot shows a software interface with a table of equipment and a 'More Actions' dropdown menu. The table has columns for 'Barcode', 'Type', and 'Description'. The 'More Actions' menu is open, showing options like 'Import', 'Export All', 'Export All to Excel', 'Export to Building Ops' (circled in red), 'Add Library Files', 'Link Checklists', 'Edit All Items In List', and 'Customize View'. The 'Export to Building Ops' option is highlighted with a red circle.

Barcode	Type	Description
AC-1	S	Serves: T-D 075
AC-2	S	Serves: ELEV CTRLM6
ACCU-1	S	Serves: T-D 075
ACCU-2	S	Serves: ELEV. M604
AHU-1	A	Serves: NE CORNER
AHU-2	A	Serves: COMMON ARE
AHU-3	A	Serves: OFFICES
AHU-4	A	Serves: HEALTH SERV
AS-1	A	Serves: BUILDING HEA
AS-2	A	Serves: HOT WATER / C
AS-3	A	Serves: BUILDING CHII
B-1	G	Serves: PROPOSED BU
B-2	G	Serves: PROPOSED BU

# Minutes Later SUCCESS!





Edit

Add +

Name		Name ^
ACCU-2	Serves: ELEV. M604	<a href="#">Commissioned &gt;</a>
CUH-1	Serves: VESTIBULE 010	<a href="#">Commissioned &gt;</a>
CUH-1	Serves: VESTIBULE-2 027	<a href="#">Commissioned &gt;</a>
DWBP-1A/B/C	Serves: BUILDING	<a href="#">Commissioned &gt;</a>
ERU-3	Serves: NORTH/SOUTH-NORTH	<a href="#">Commissioned &gt;</a>
FCU-1	FLOOR 6D, ROOM Unit 2	<a href="#">Commissioned &gt;</a>
FCU-1	FLOOR 6K, ROOM Unit 2	<a href="#">Commissioned &gt;</a>
FCU-1	FLOOR 4C, ROOM Unit 1	<a href="#">Commissioned &gt;</a>
FCU-1	FLOOR 6M, ROOM Unit 1	<a href="#">Commissioned &gt;</a>
FCU-1	FLOOR 6C, ROOM Unit 1	<a href="#">Commissioned &gt;</a>

Contact Us



Name

Name ^

Documents and Manuals



Add web link

CUH\_O\_M.pdf  
Updated: Nov 16, 2016

Submittal\_0041-...  
Updated: Nov 16, 2016

Details

<b>manufacturer</b> Airtherm	<b>model</b> FCTF023L	<b>serial number</b> B1501363128001004
<b>installed by</b> <a href="#">None &gt;</a>	<b>installation date</b> <a href="#">Add &gt;</a>	<b>warranty expiration</b> <a href="#">Apr 30, 2017 &gt;</a>

[more](#) ▾

Comments

Add comment



ARCHIVE

# Equipment, O&M, Photos, Submittals, all there.

**AUTODESK BUILDING OPS** [BUY NOW](#) Search this list

AU Building 2016 > Assets Edit Add +


Name Name ^

mechanical x cabinet unit heater x add category

<b>barcode / QR code</b> E0210 <a href="#">Add &gt;</a>	<b>scheduled maintenance</b> <a href="#">None &gt;</a>	<b>location</b> <a href="#">010 Vest. &gt;</a>
<b>associated tickets</b> None	<b>assigned</b> <a href="#">None &gt;</a>	<b>history</b> <a href="#">View &gt;</a>

**Photos and Videos**

[Add Photo or Video](#)



**Documents and Manuals**

[Add PDF](#)

[CUH\\_O\\_M.pdf](#)  
Updated: Nov 16, 2016

[Submittal\\_0041-...](#)  
Updated: Nov 16, 2016

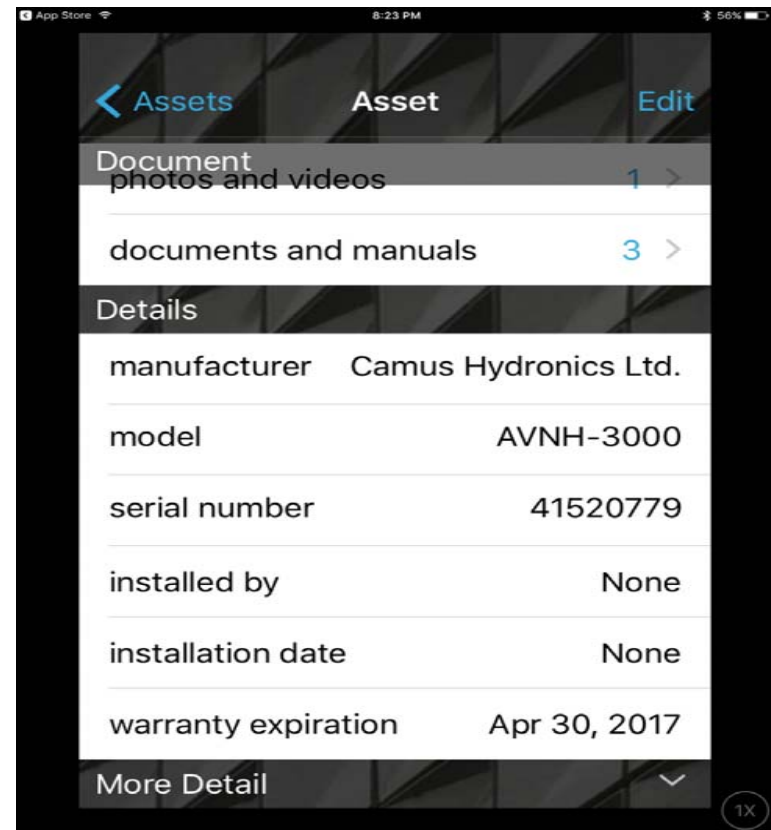
[Add web link](#)

**Details**

manufacturer	model	serial number

[Contact Us](#)

# Even On the Mobile App!







**NOT SO FAST MY FRIEND**

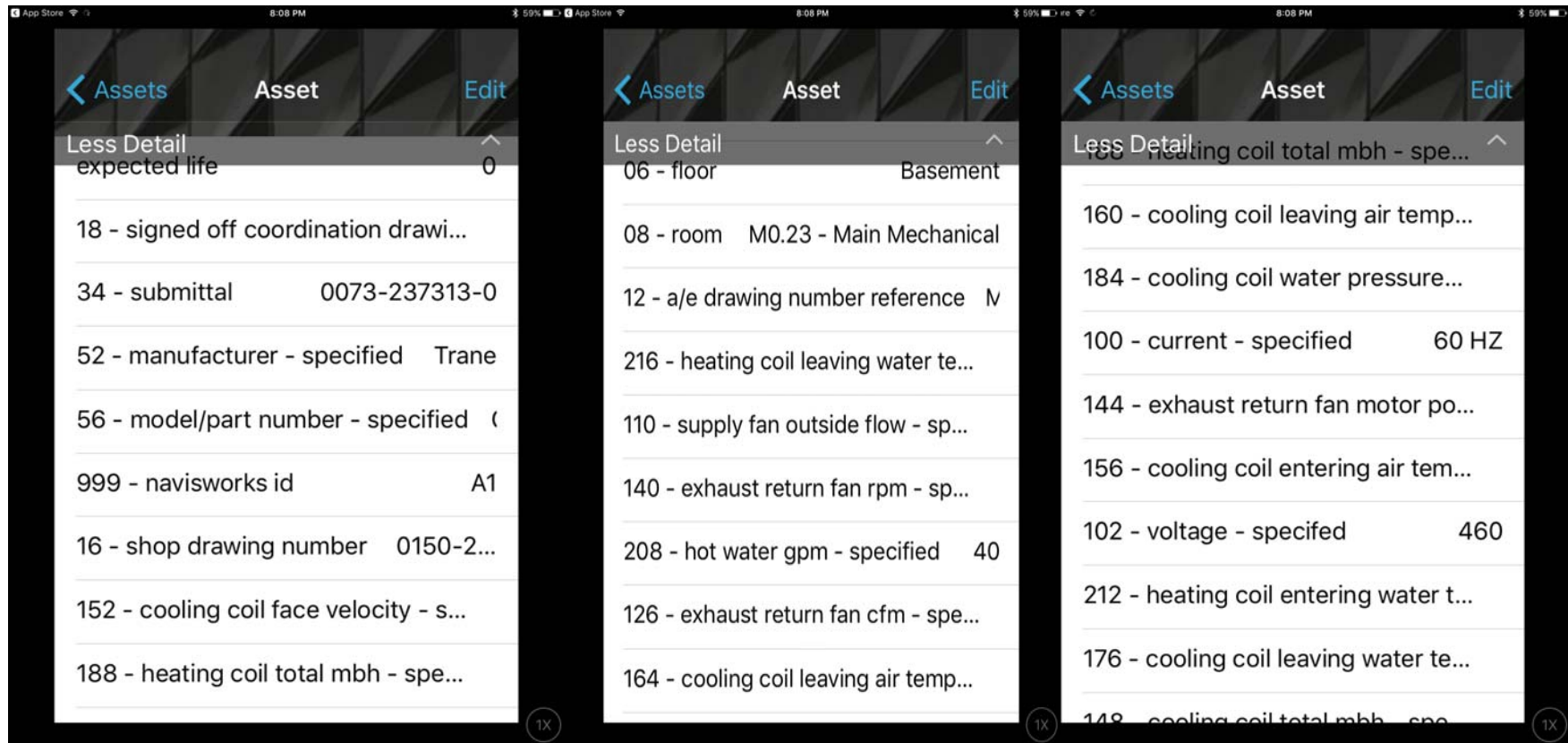


# Closer Review of Data

- Custom Construction Fields Appeared In Building Ops

Asset	
Details	PKA-A24KA4
serial number	49M 04750
installed by	None
installation date	None
warranty expiration	May 30, 2016
Less Detail	
01) installed	08/28/2015
02) piped	08/28/2015
04) pipe insulated	02/23/2016
07) power	02/23/2016
expected life	0
submittal	0039-238126
warranty start date	May 30, 2016

# Additional Custom Fields



# Property Names/ID Alignment Different

Building Ops Property	BIM 360 Field Property	BIM 360 Field Type	Notes
Asset ID	Name	Required	If Asset ID is not used*
Description	Description	Standard	If Asset ID is not used*
Category	Type	Standard	
Barcode/QR Code	Barcode	Standard	
Location	Location		Imported as a string

## Other Factors

- Design Locations naming did not match end user programming naming
- Generic Asset ID Tags used
- QR Codes not part of campus standard
- Realization of Inconsistent campus standards

**How Do We avoid this?**

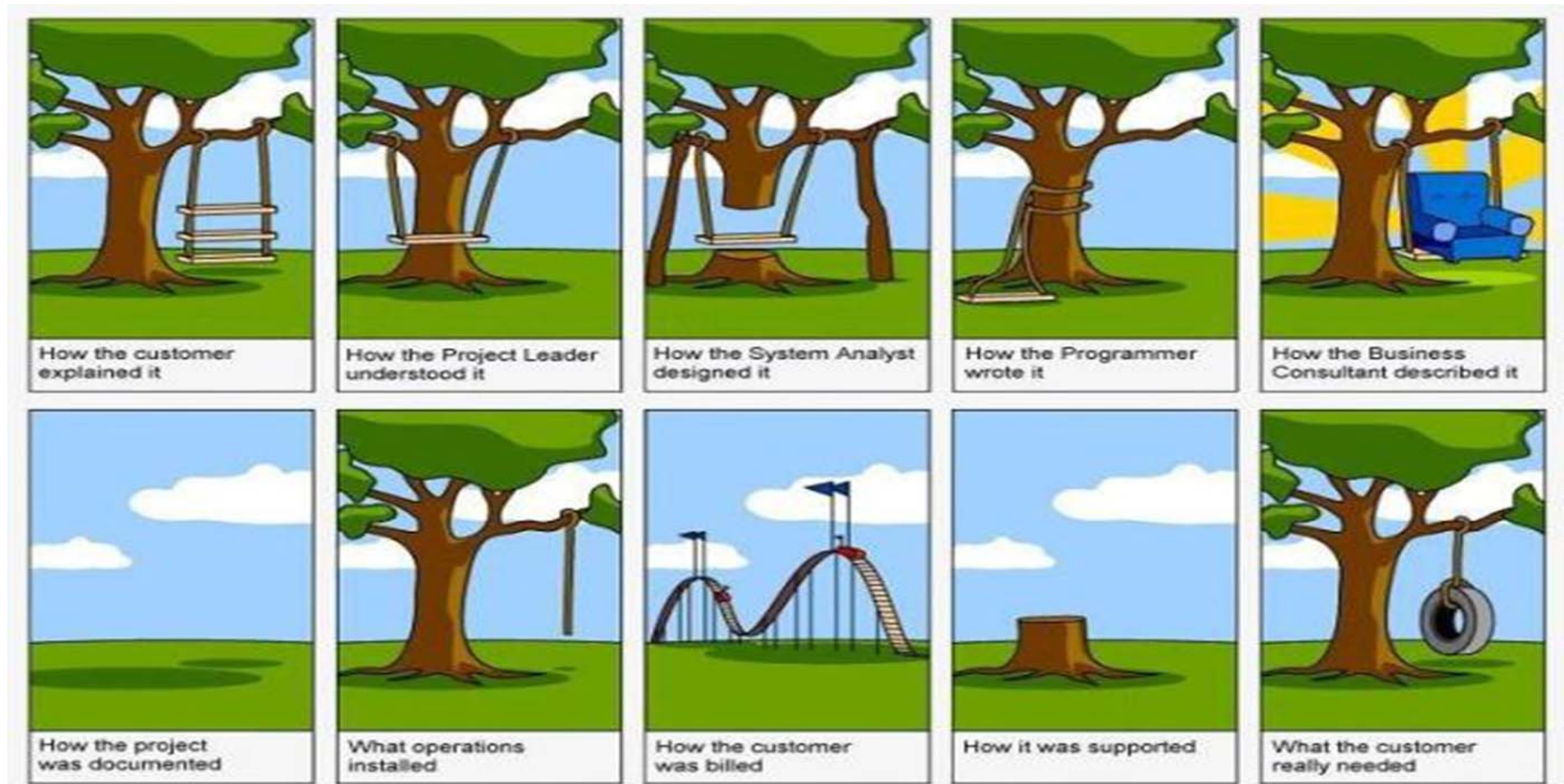
**Where do we Start?**

**“Attack The Root Causes of Most Problems”**

**Communication**

**Variation**

# Breakdown in Communication



# Team Not On Same Page



# Engage the Teams and Start Asking Questions

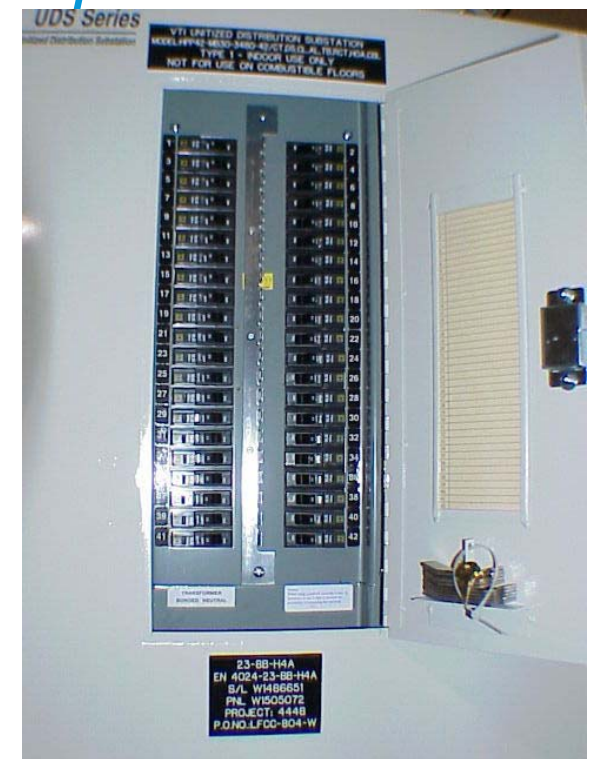
## Initial Questions

- Does the client have a standard that is in alignment with the contract documents?
- Does the Client use a FAM System?
- What are the export/import parameters for the clients FAM System?
- Who will ultimately be the end user of the Data?
- What information does that end user find of Value?

*What assets will the Owner's FM team perform regular preventative maintenance on?*



*What assets will the Owner's FM team NOT PERFORM regular preventative maintenance on, but would like to track in a computerized maintenance management system (CMMS), like Building Ops, for locational purposes?*



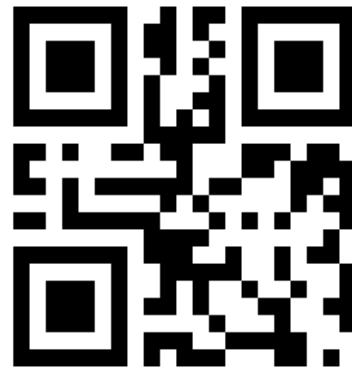
*Besides standard data that Building Ops asks for about each asset (i.e. Asset ID, Description, Manufacturer, Model, Serial Number, Warranty Data), is there any additional information the Owner would like to keep track of for each asset?*

## *Does the Owner have any space standards that the CM Firm must adhere to?*

- Names of spaces (Locations)
  - *These Cannot Be Changed*
- Departmental uses
- Square footage
- Rentable square footage

*Will the Owner like to Barcode/QR Code any rooms or assets? If so, is there a specific way they should be treated?*

- Are specific characteristics the QR Code must have?



BOND



DFCI Longwood ARF  
Clean Work - 9203

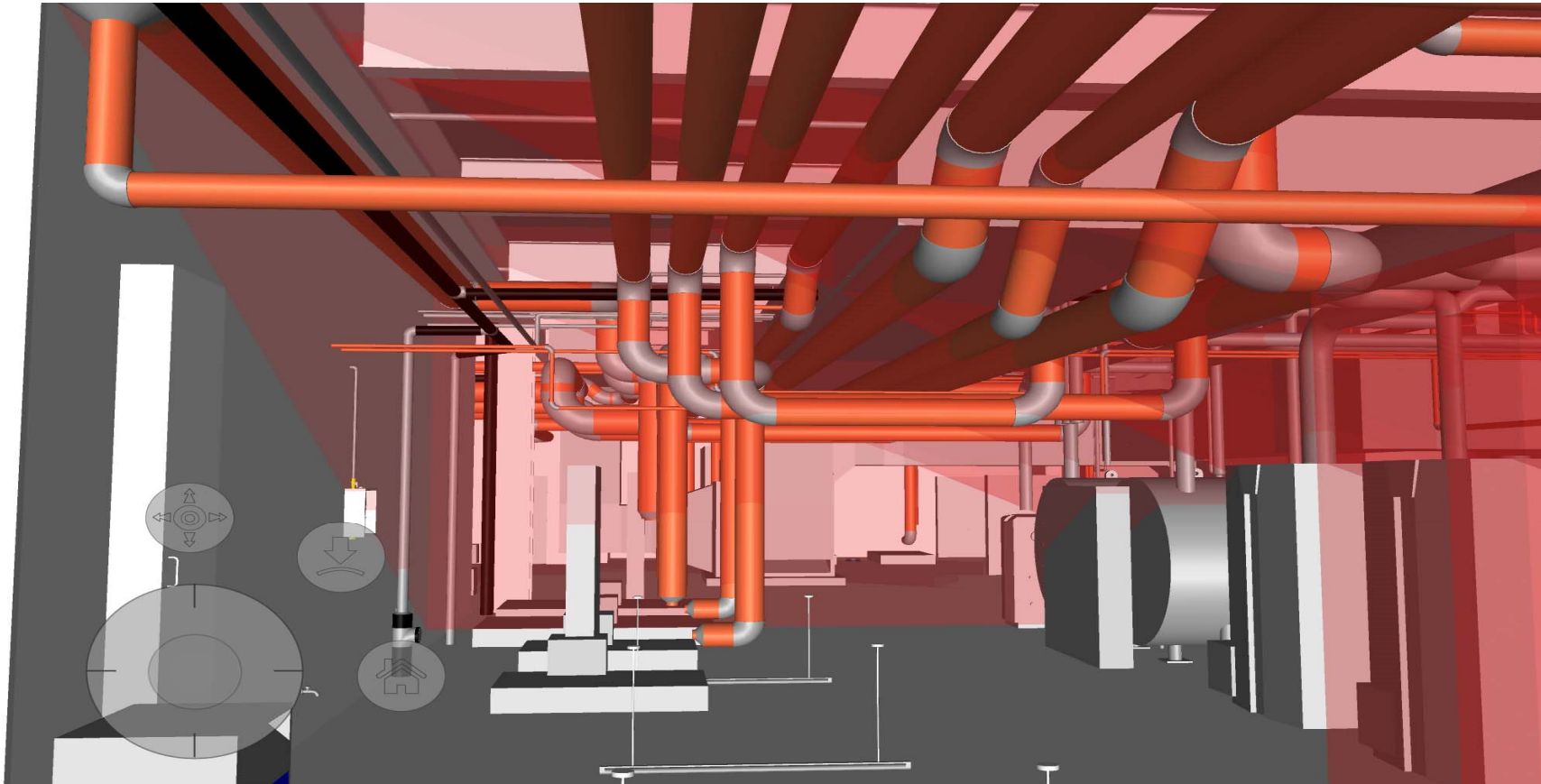
*Does the Owner have specific naming conventions for data that the CM Firm to adhere to when tracking and loading data?*

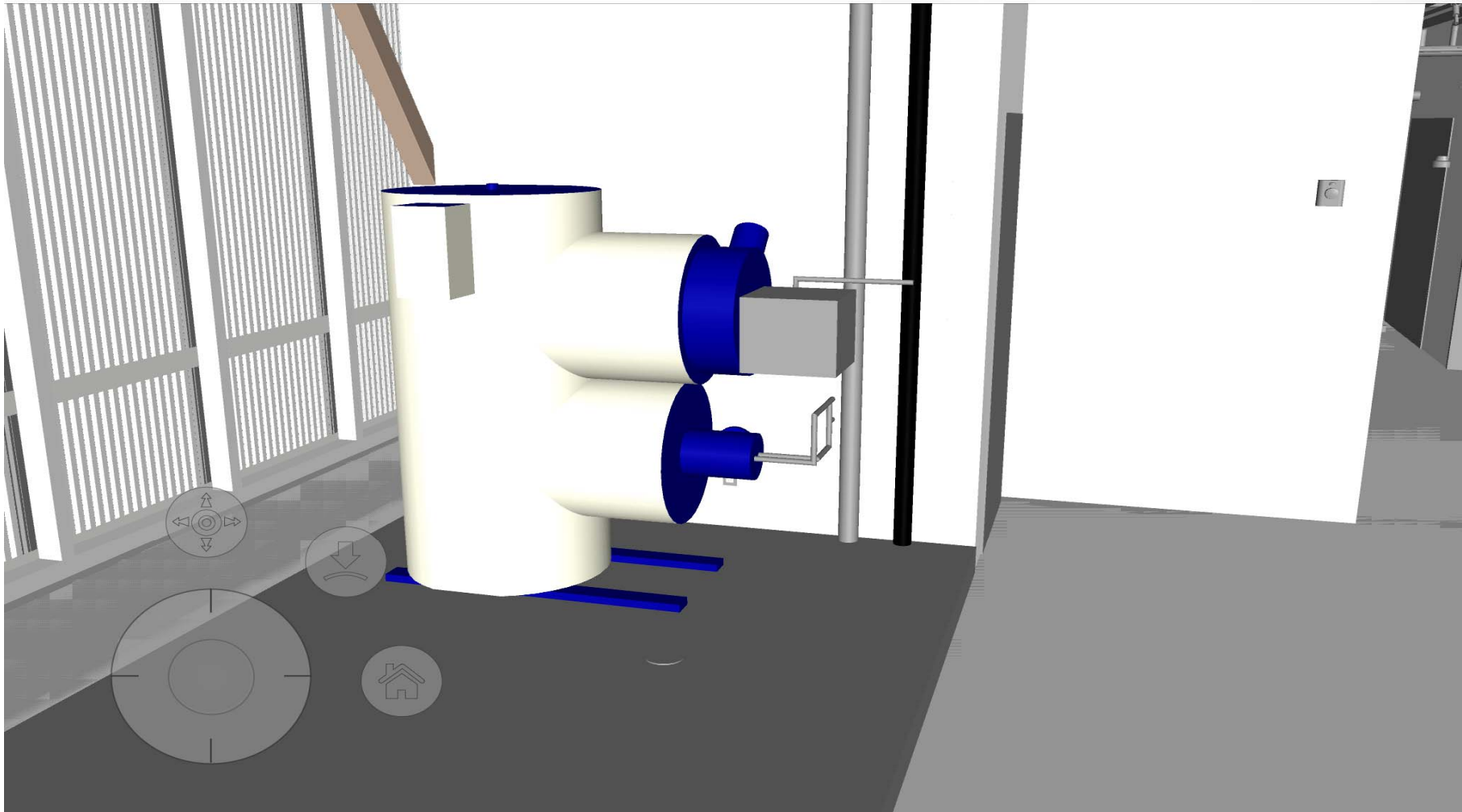
- naming conventions for:
- asset data
- spatial data
- Even QR/Bar Codes

# To Include The Model or Not to Include the Model? That is the question.

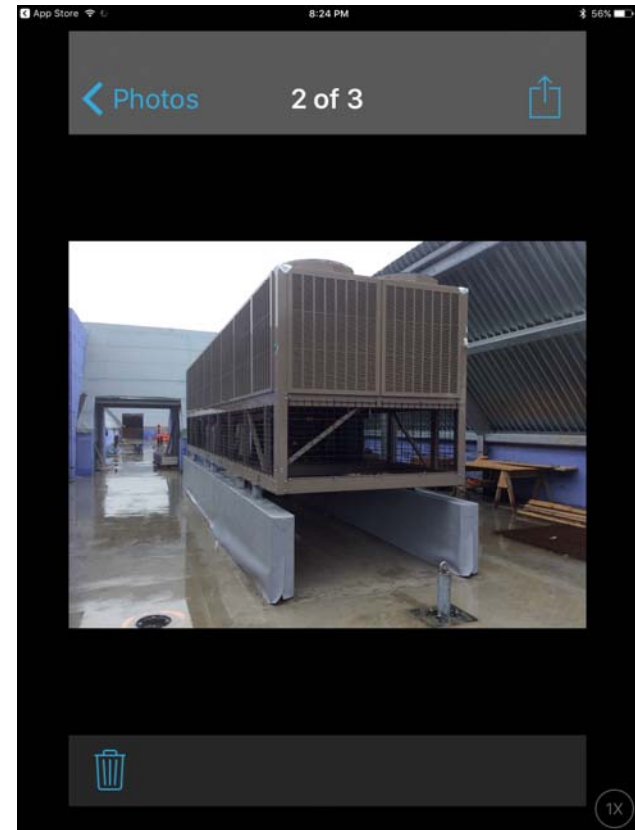
- Everybody Says they Want the model.
- However, do they actually need the model?
- Will They use the Model?

# What Does the Model Actually Show Us?





# Pictures Can be as Effective



## **In Absence of Direction- Use these as a minimum baseline to provide to your client.**

- Manufacturer
- Model Number
- Serial Number
- Warranty End Date
- Suggested Preventative Maintenance Intervals
- Customer Support Phone Number
- O&M Manual
- Approved Submittal

# Summary

- Start the Communication Early
- Engage your client, especially the end users and get their feedback.
- Publish Spreadsheet of Agreed upon Fields, properties, and Naming Conventions.
- Expect Things to Change Despite your best Efforts to stop them.



# Thank You



# Questions?

# Contact Information

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