# Lean Up Your Construction Coordination Process with Forge, BIM 360, and PlanGrid

Matt Vanture and Tyler Davis

Whiting-Turner

AUTODESK. UNIVERSITY

# About the speaker

## Matthew Vanture

An experienced VDC Manager with a demonstrated history of working in the construction industry. He has a strong operations focus and passion for moving what is learned by the 3D pre-construction process to the field. Vanture is a regular guest lecturer at the University of Florida and Georgia Institute of Technology [Georgia Tech] for BIM and VDC as well as a National Science Foundation advisory board member. He graduated with a Bachelor of Science focused in Construction Management from University of Florida

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# About the speaker

## Tyler Davis

Graduate of California State University, Fresno with a Bachelor of Science in Construction Management, building his career at Whiting-Turner in California.

Laser focused on continuous growth in construction management, construction technology and BIM/VDC.

# "If you want the same result, do the same thing. If you want something different, do something different."

These words from the speaker’s leadership hit home when first heard as a young virtual design and construction (VDC) engineer after grinding through the first coordination project. After hitting road blocks with communicating issues in the coordination process, losing information in too many repositories, wasting time running back and forth to the trailer, and not having the data to learn what to do different, the speaker and team have created smarter workflows and processes to better plan, do, check, and perform their efforts.

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# Learning Objectives

1. Discover where forge can be used to communicate clashes to the project team more effectively
2. Learn how to differentiate where BIM 360 Field starts as an issue resolution log (IRL) instead of just a field log
3. Learn how to create simple process maps for checking installed work
4. Learn how to establish your own data points for future action on projects

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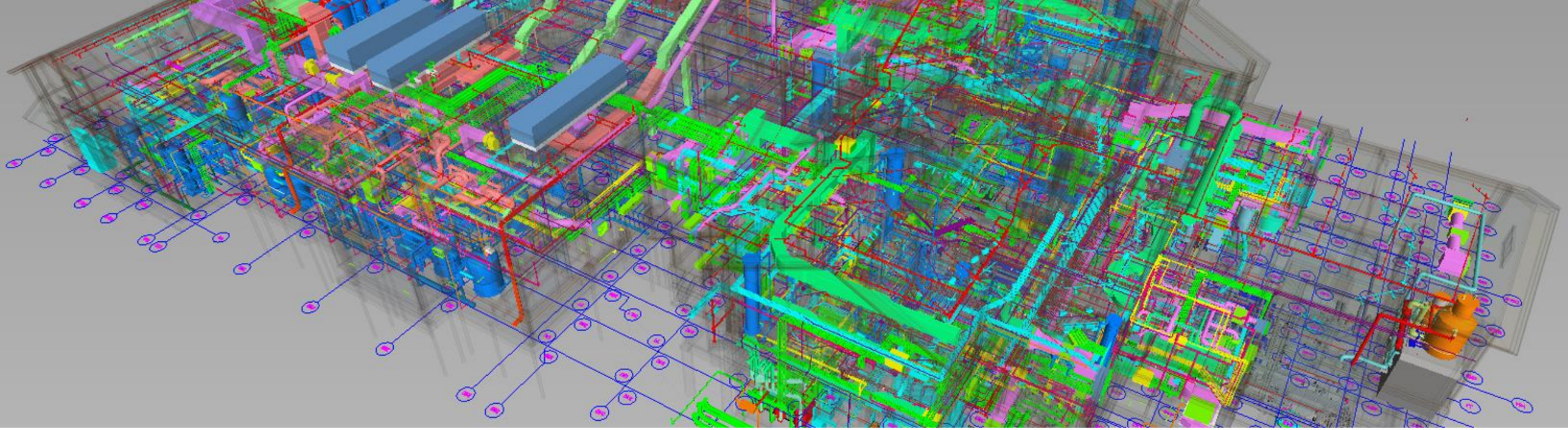

# Outline

**PLAN**
Process Maps

**DO**
Navisworks/Clash Organization,
Issue Resolution Log

**CHECK**
Check as Installed

**ACT**
Data

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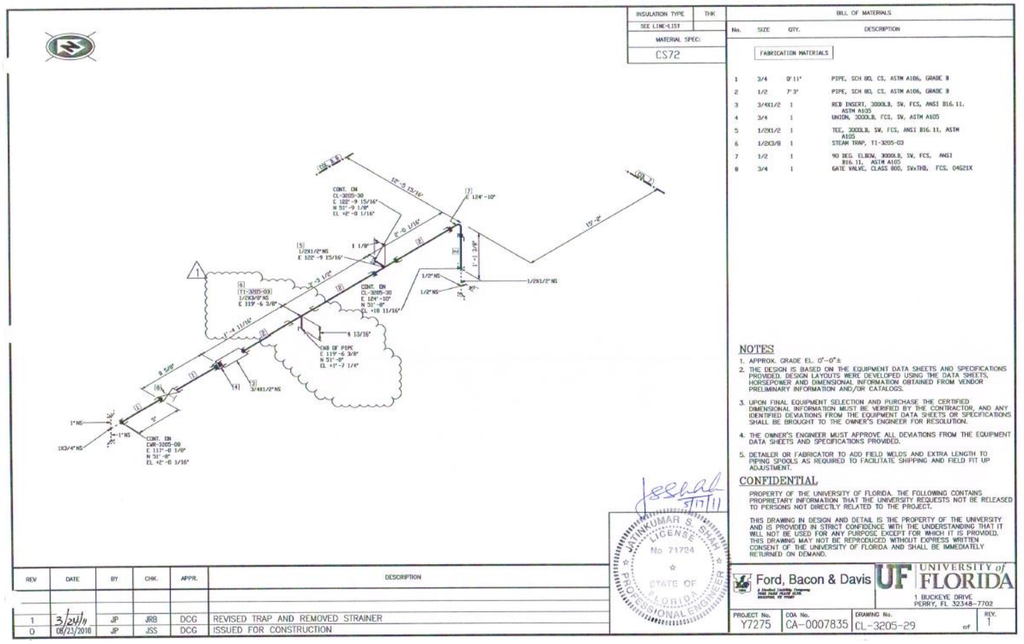
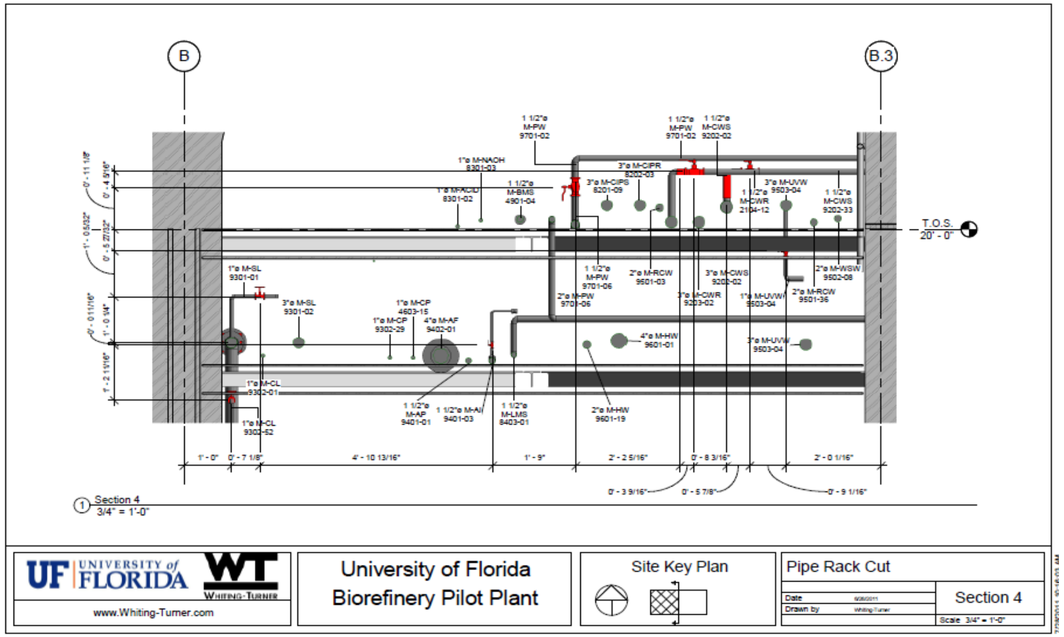
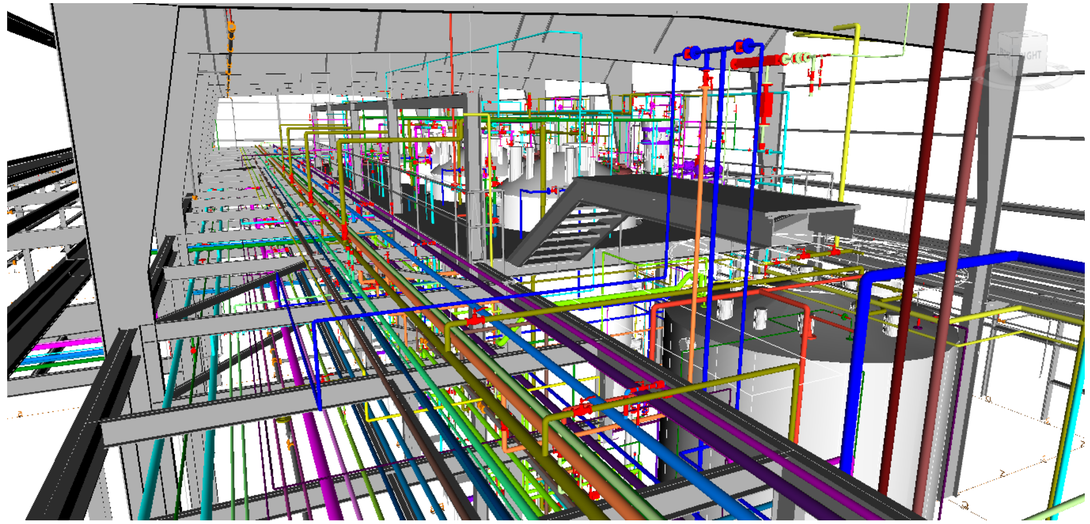
# PLAN

# “Coordination”



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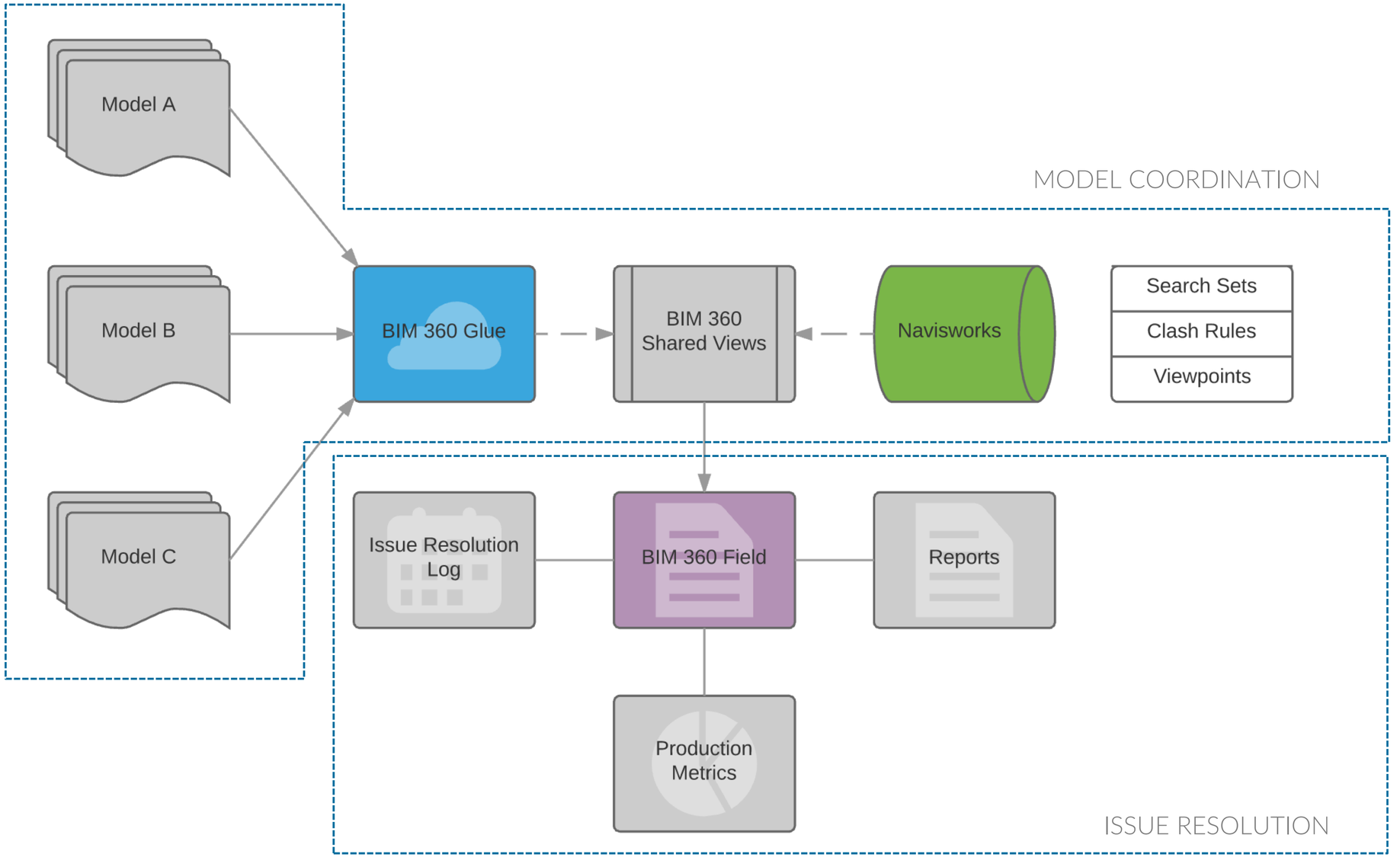
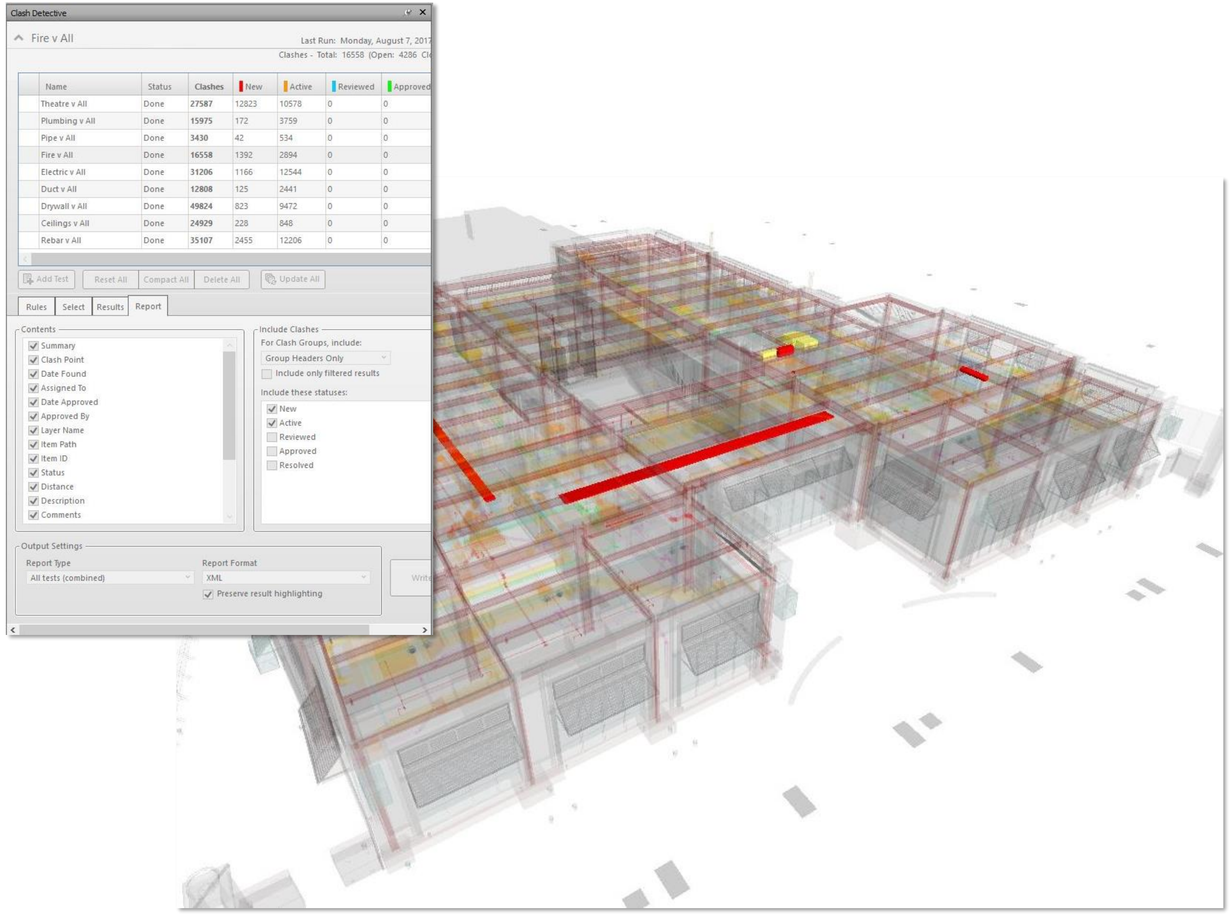
# Handover Process Map

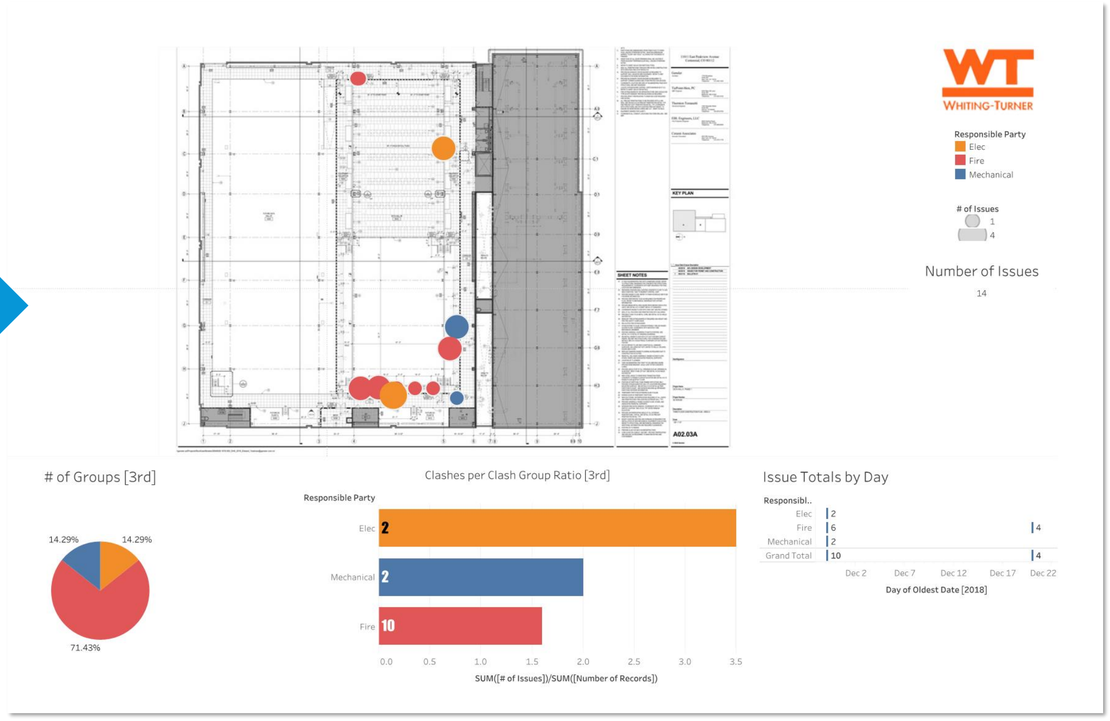
# DO

# Issue Identification



# Clash Organization

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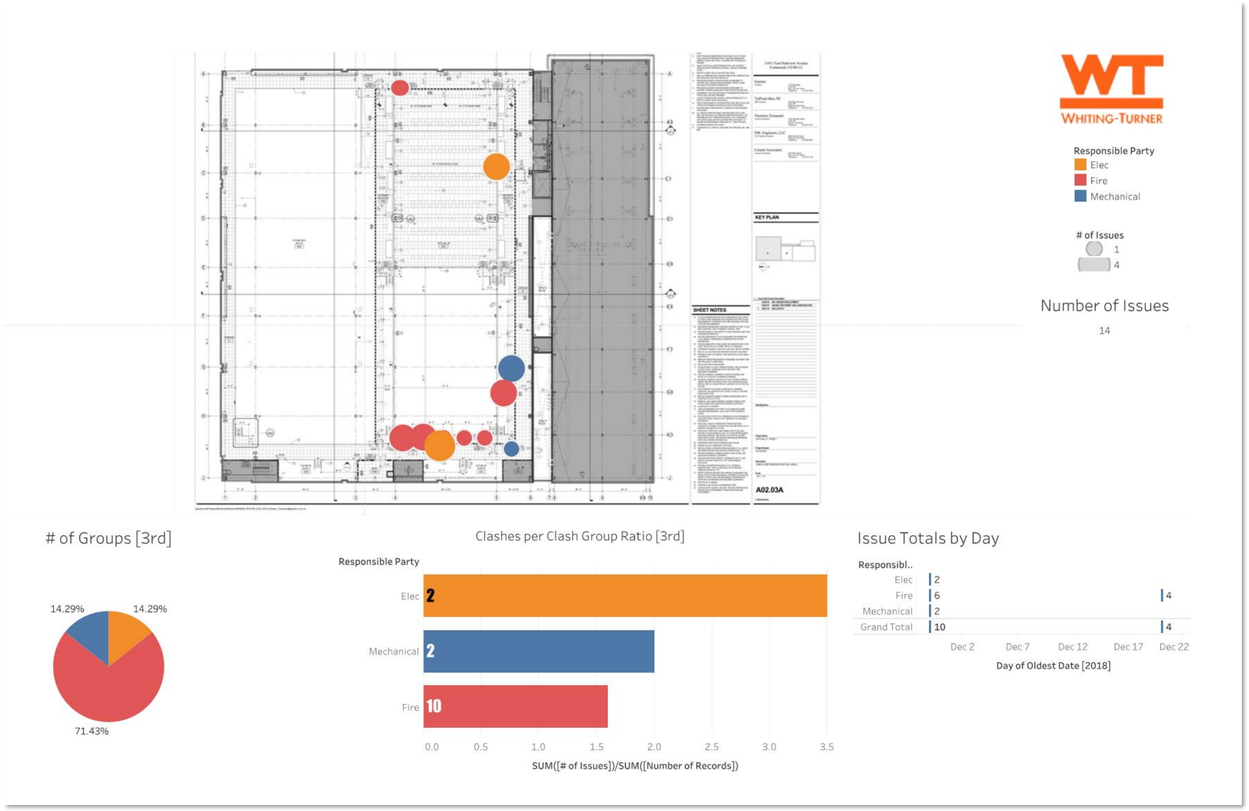
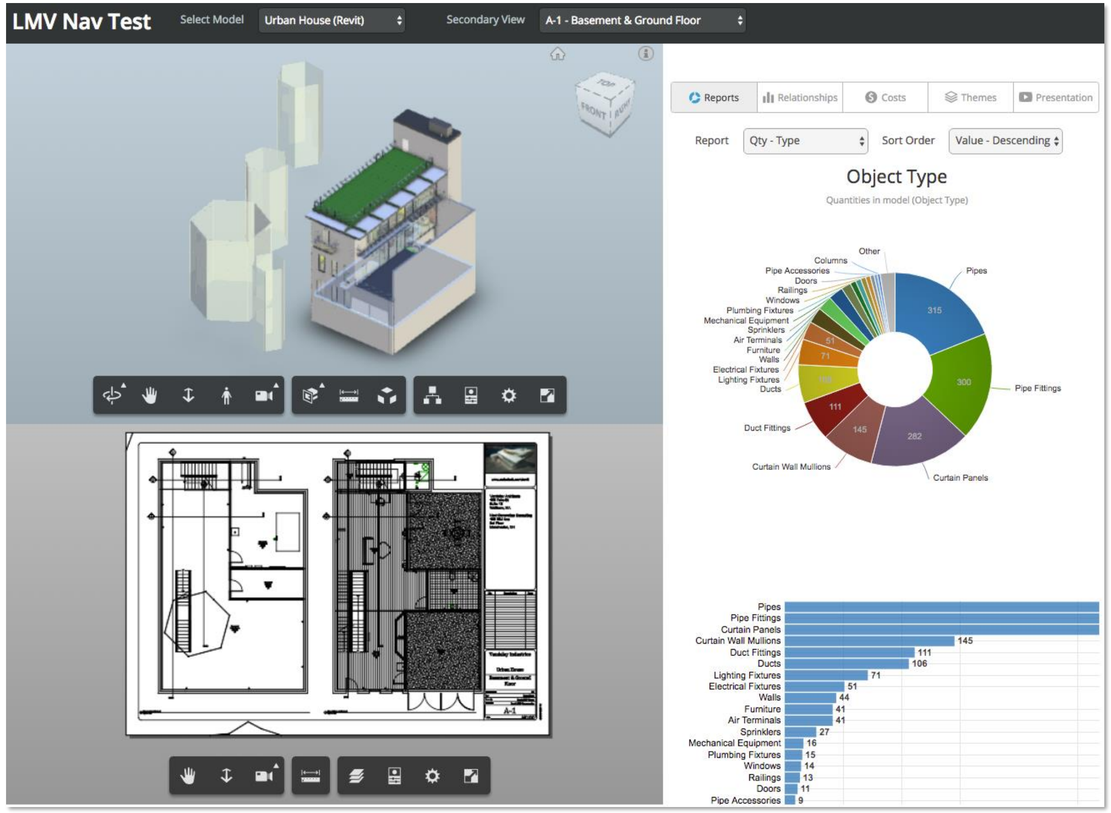
# Forge

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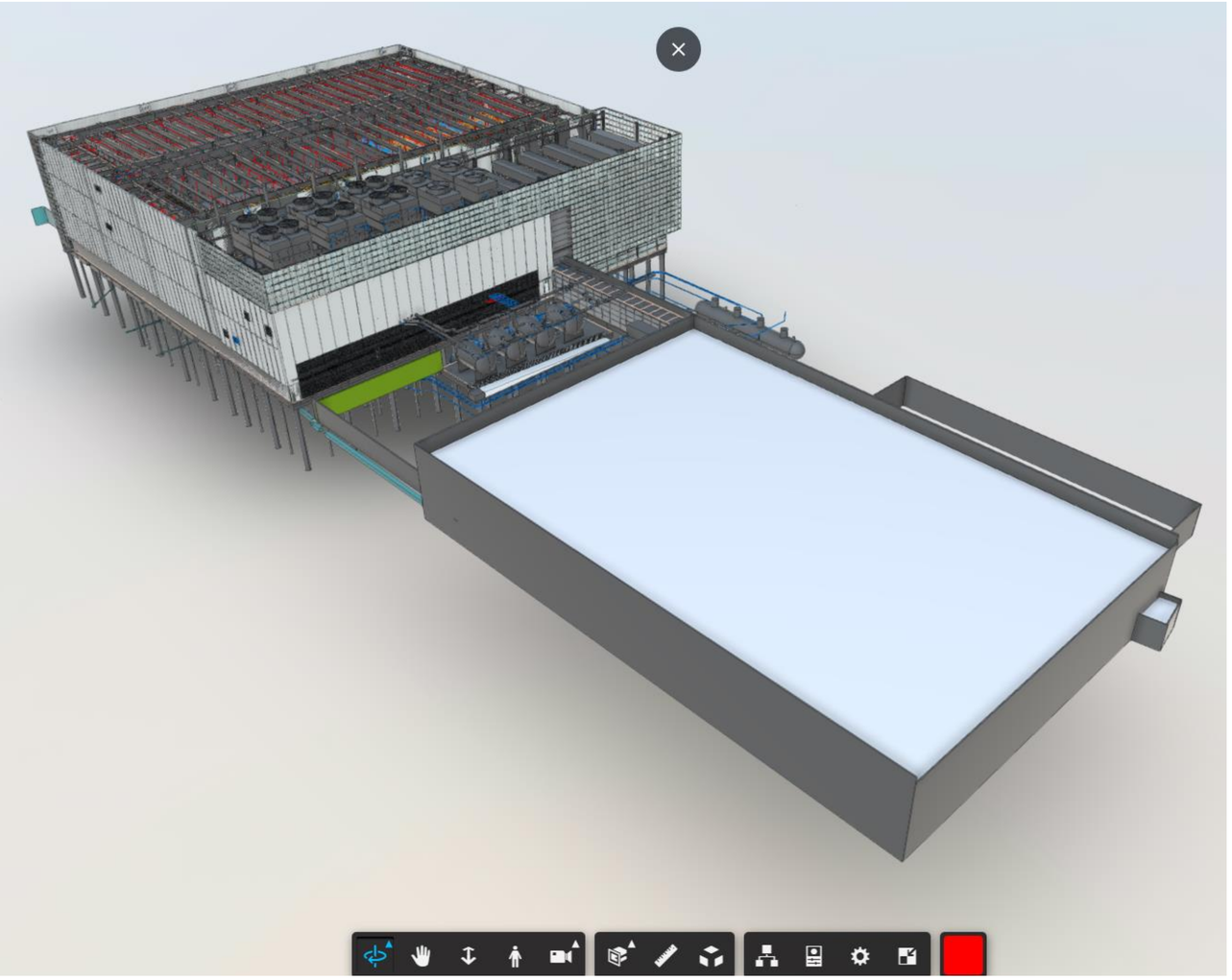

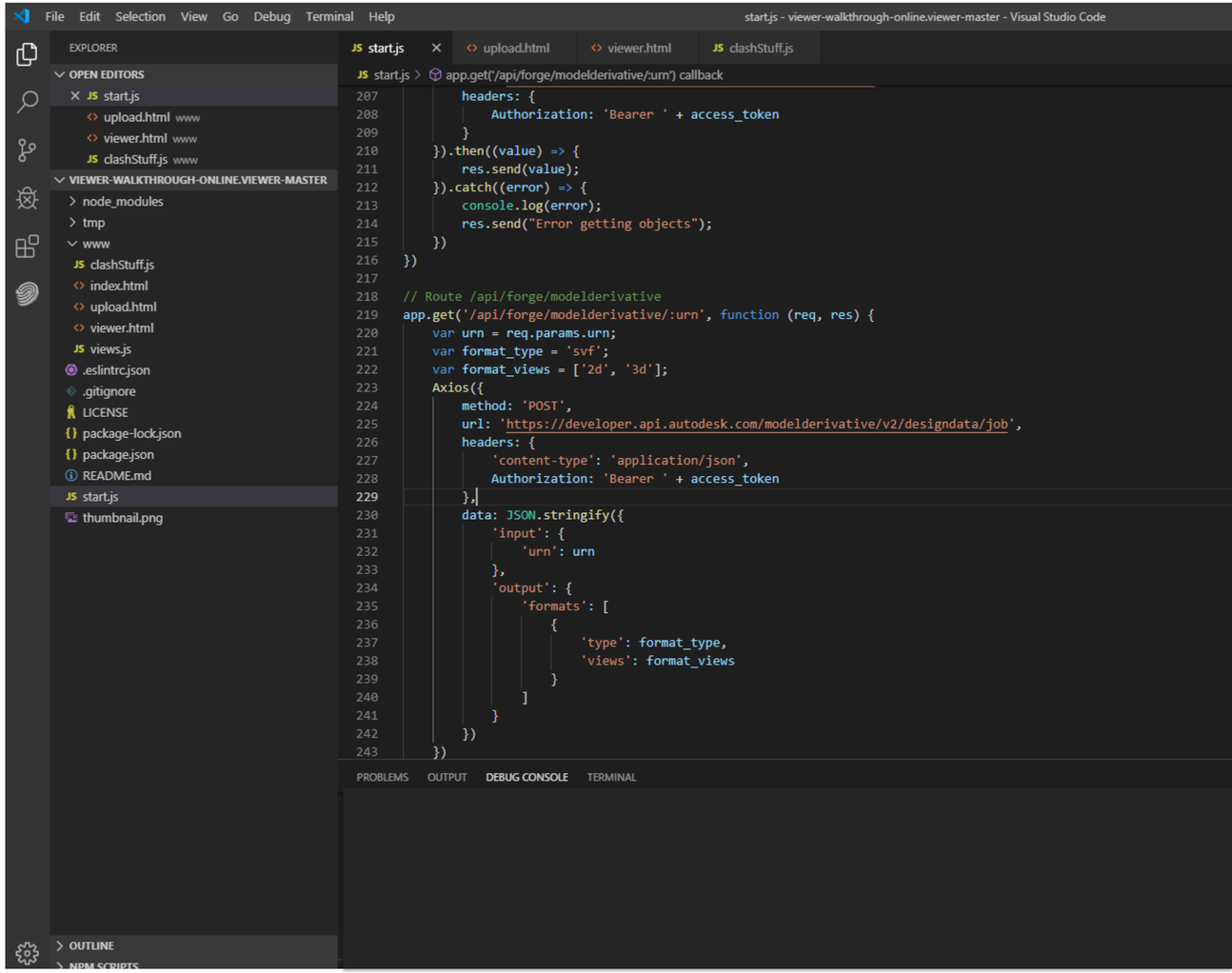


# Team Viewer

# Backend

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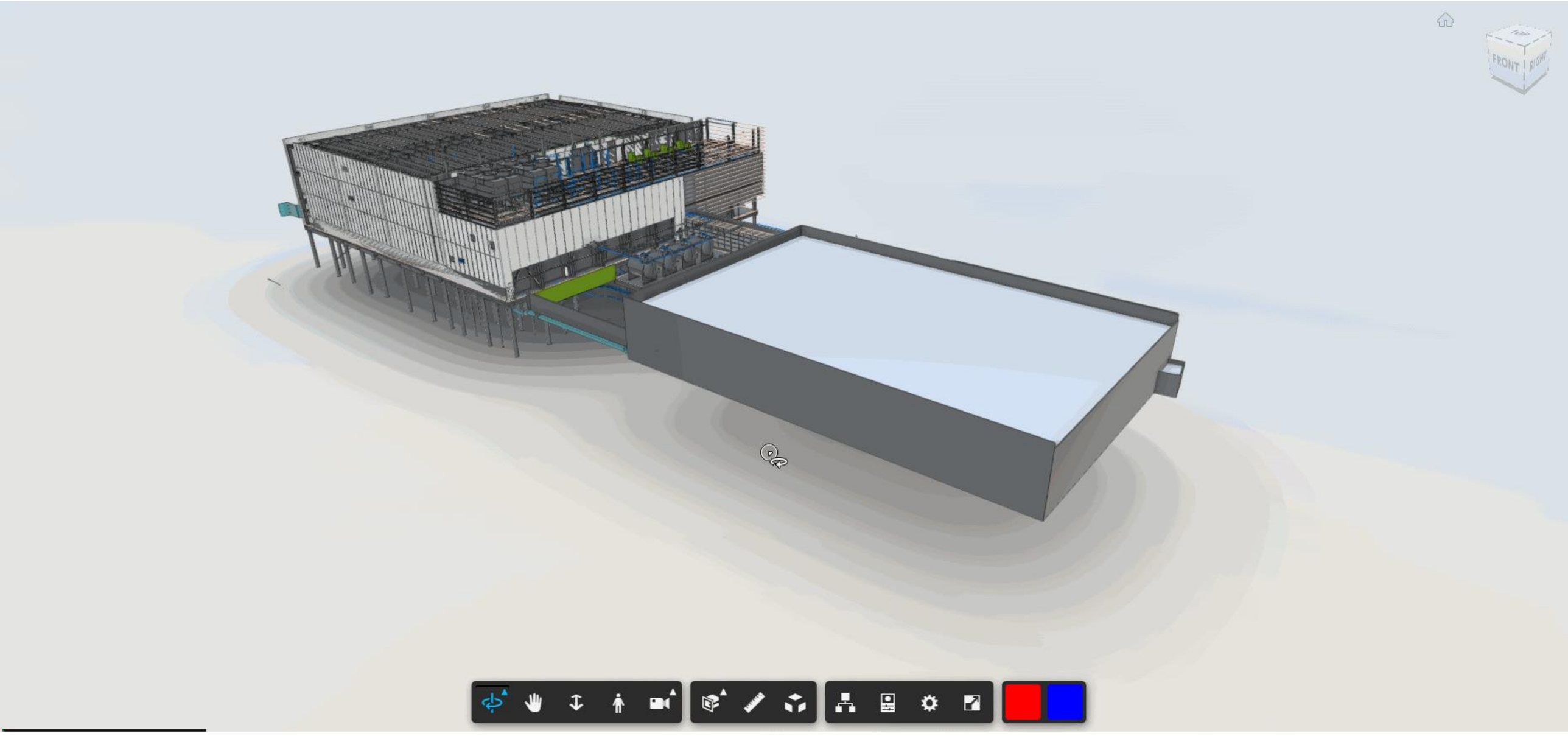
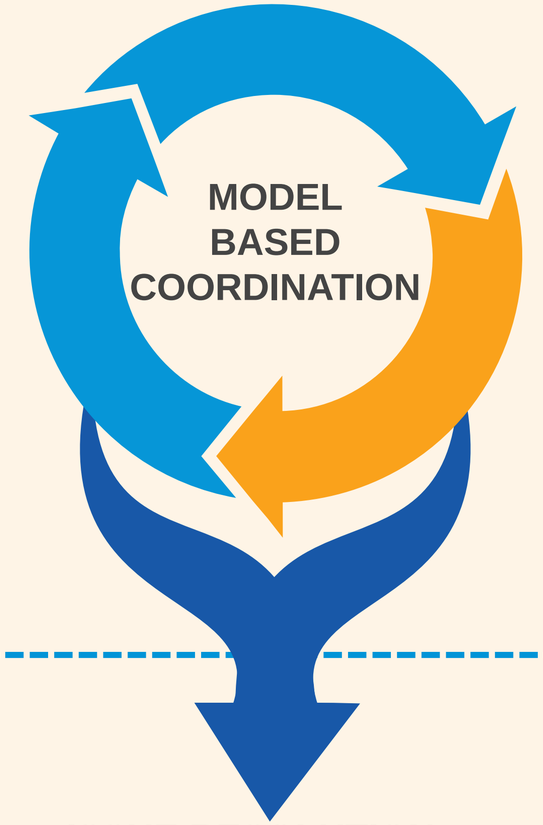

TOP
FRONT
RIGHT

# Issue Tracking

Check

# Issue Resolution Process

## DEFINITION OF PROCESS




### Design Coordination
- Design Optimization
- System Coordination
- Constructability Review
- Clash Detection

### Trade Coordination
- Detailed Design Coordination
- Prefabrication Analysis
- Detailed Shop Drawing Development
- Release For Fabrication / Installation

### Focused Approach To Problem Solving
- Accountability
- Metrics
- Project Predictability
- Centralized Database Of Decision Tracking
- Prioritize Issues With Cost/Schedule Impact
- Visibility / Real-time Access To Issues

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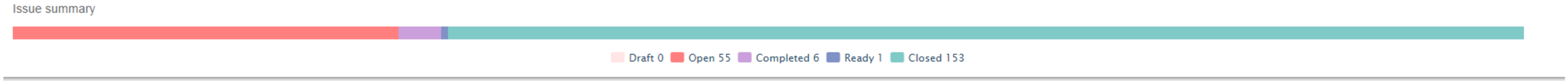
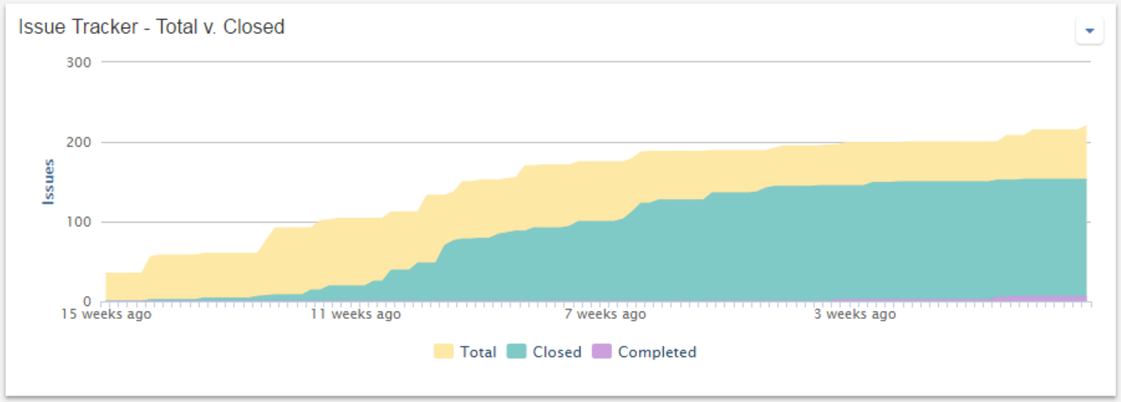
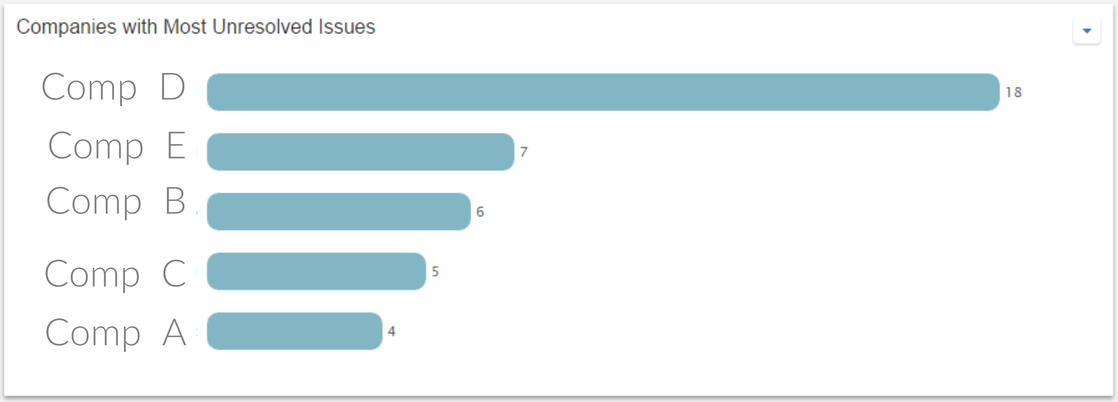
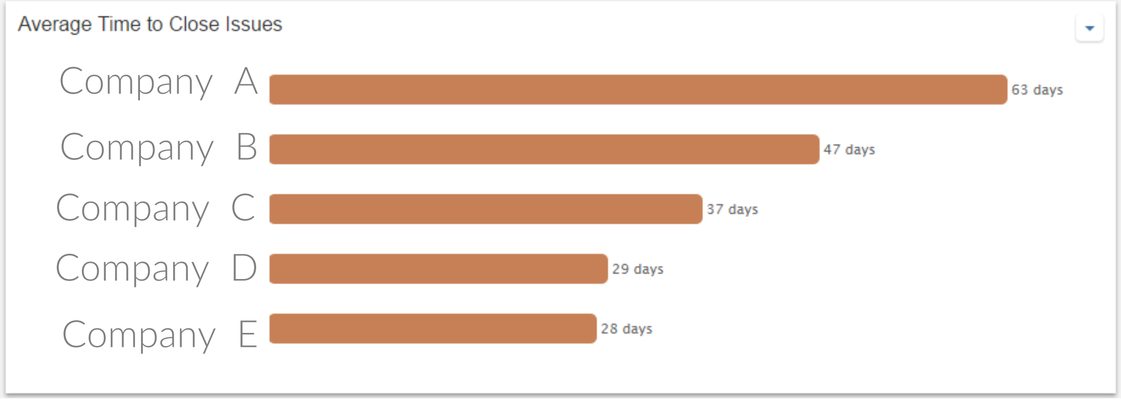
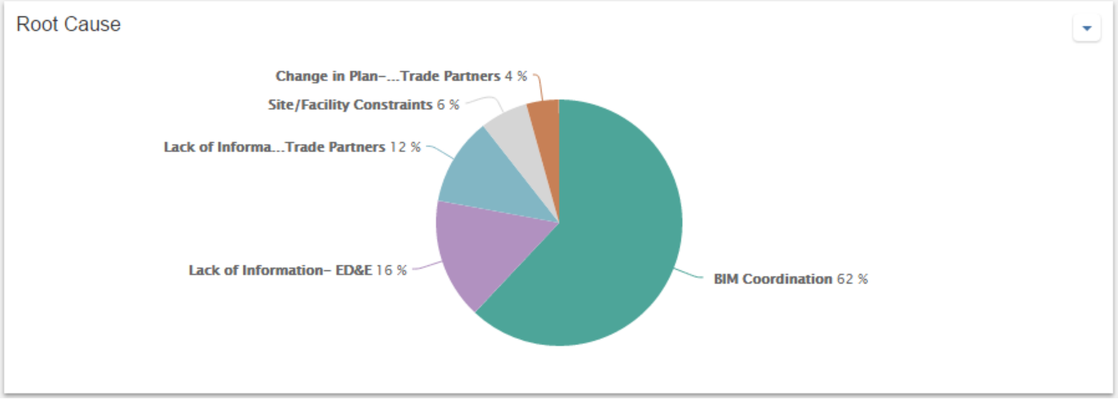
# Metrics


Issue summary
Draft 0
Open 55
Completed 6
Ready 1
Closed 153


Issue Tracker - Total v. Closed
300
200
100
0
Issues
15 weeks ago
11 weeks ago
7 weeks ago
3 weeks ago
Total
Closed
Completed

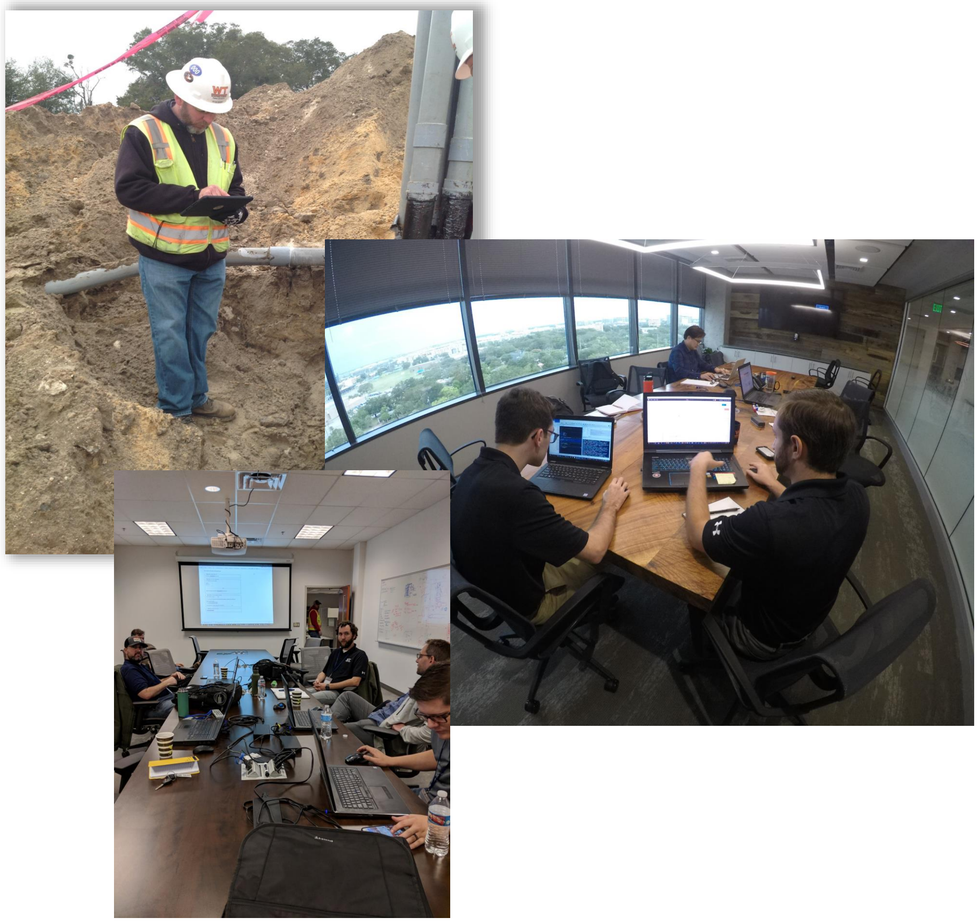

Companies with Most Unresolved Issues
Comp D
18
Comp E
7
Comp B
6
Comp C
5
Comp A
4


Average Time to Close Issues
Company A
63 days
Company B
47 days
Company C
37 days
Company D
29 days
Company E
28 days


Root Cause
Change in Plan-...Trade Partners 4 %
Site/Facility Constraints 6 %
Lack of Informa...Trade Partners 12 %
Lack of Information- ED&E 16 %
BIM Coordination 62 %

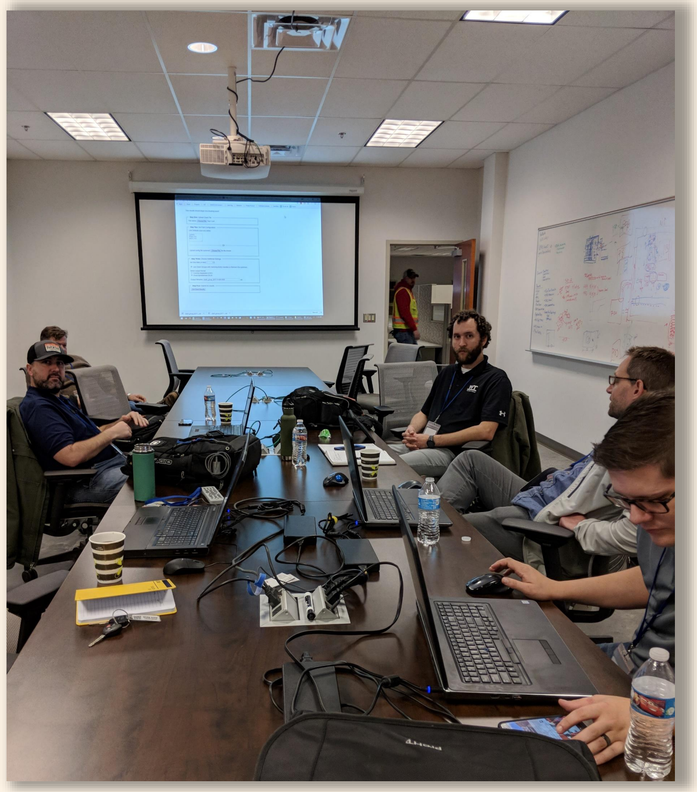
# Projected Implementation Outcomes

- ACCESSIBILITY OF INFORMATION
- STREAMLINED RESOLUTION
- TRANSPARENCY & ANALYTICS
- AGILE COMMUNICATION

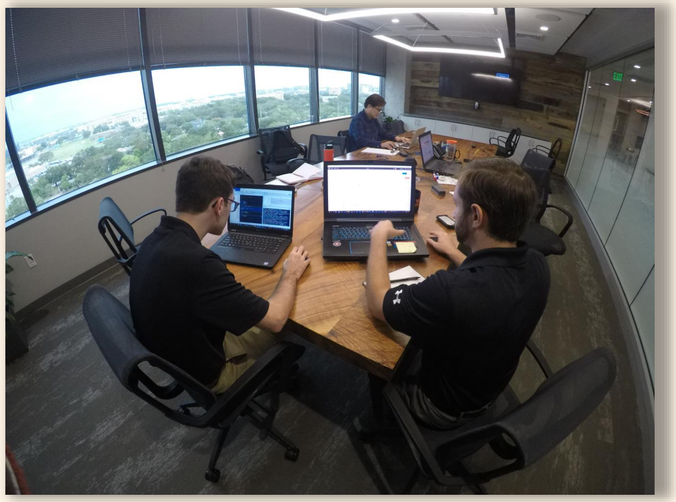


# Use Cases

## BIG ROOM
(GROUP INPUT)



## DIVISIONS OF WORK
(INDIVIDUAL INPUT)

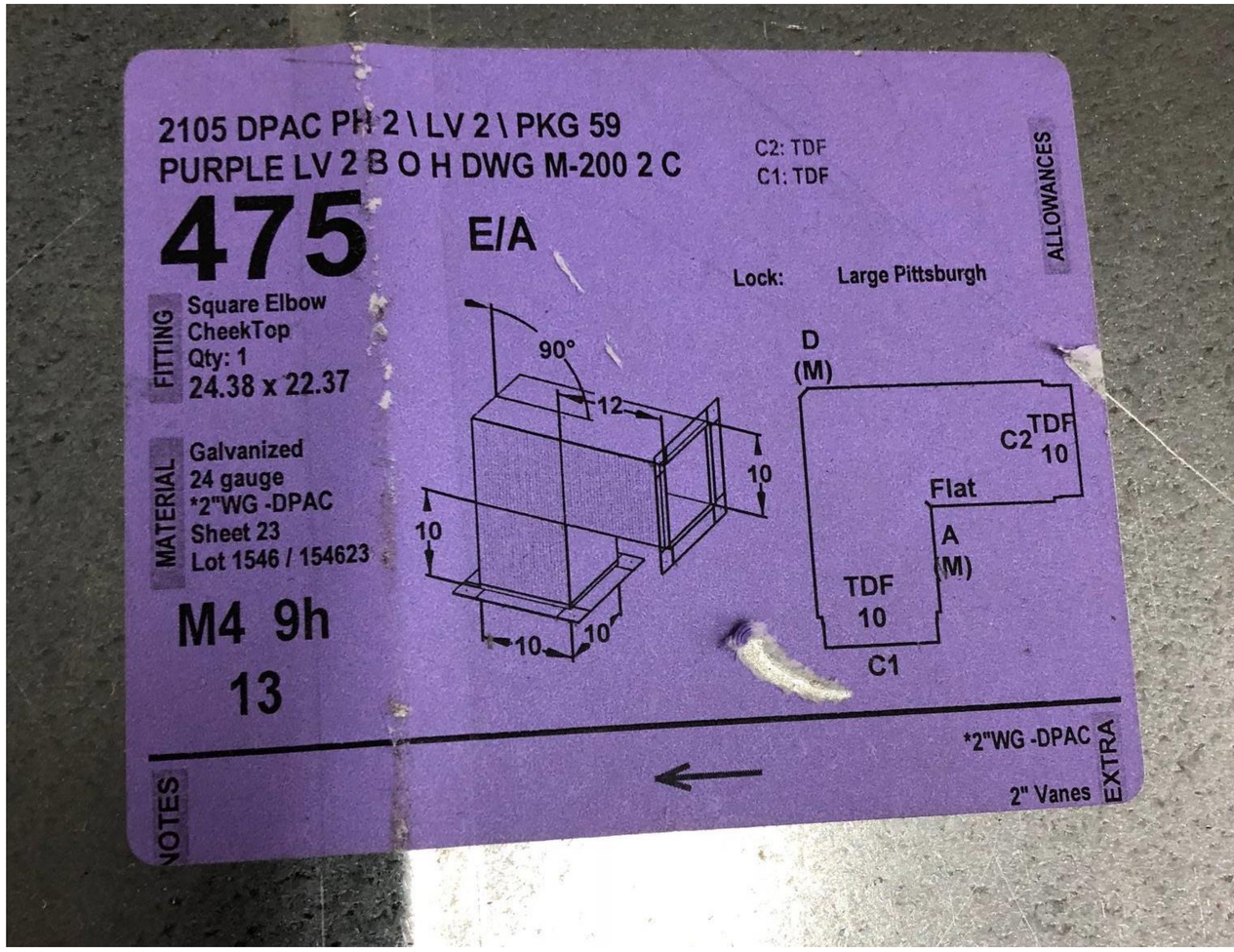


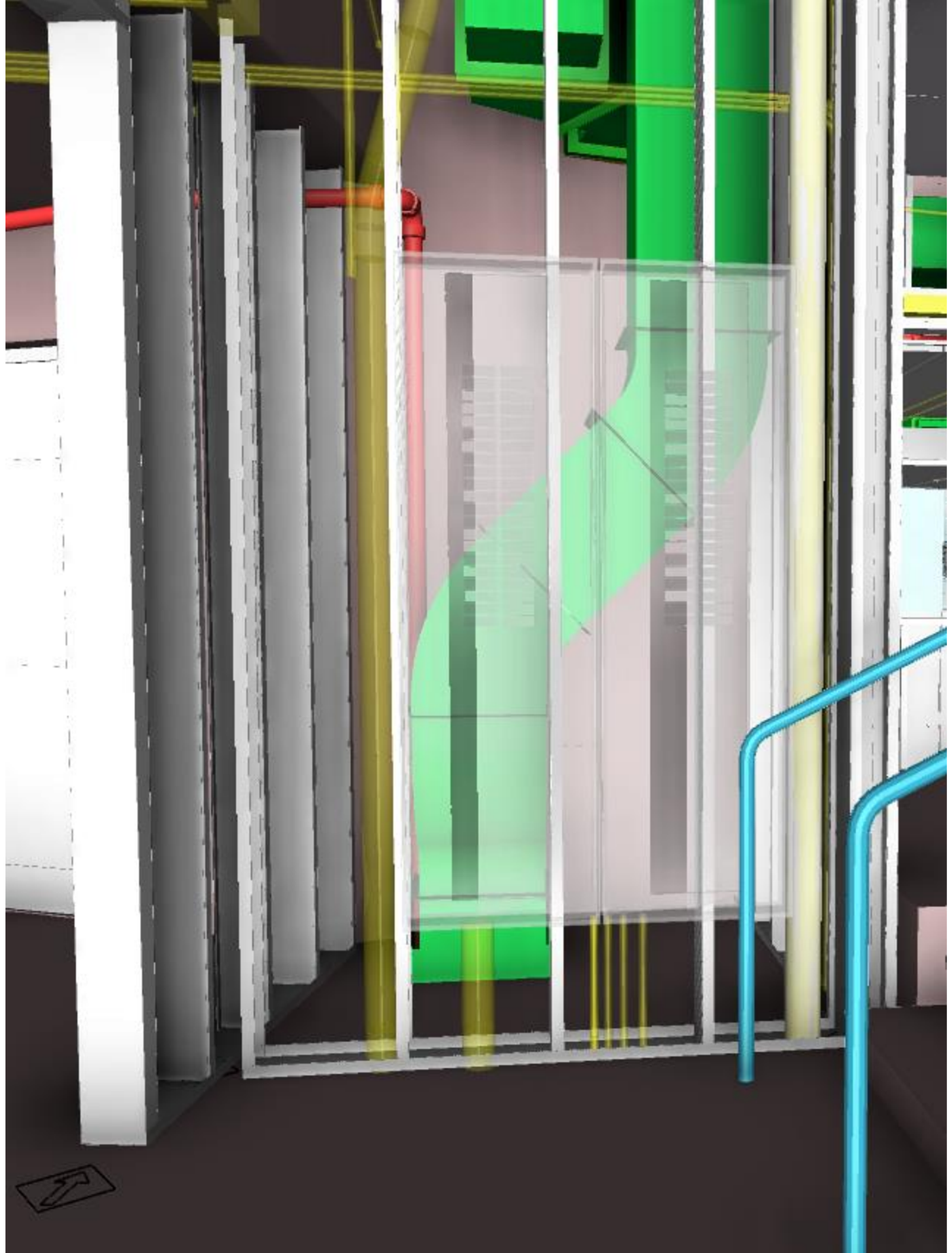
## CONSTRUCTION OPERATIONS
(INDIVIDUAL INPUT)

# CHECK

# Progress Tracking

Ductwork


2105 DPAC PH 2 \ LV 2 \ PKG 59
PURPLE LV 2 B O H DWG M-200 2 C
C2: TDF
C1: TDF
475
E/A
Lock: Large Pittsburgh
ALLOWANCES
FITTING
Square Elbow
CheekTop
Qty: 1
24.38 x 22.37
MATERIAL
Galvanized
24 gauge
*2"WG -DPAC
Sheet 23
Lot 1546 / 154623
M4 9h
13
90°
12
10
10
10
10
D
(M)
C2 TDF
10
Flat
A
(M)
TDF
10
C1
EXTRA
*2"WG -DPAC
2" Vanes
NOTES



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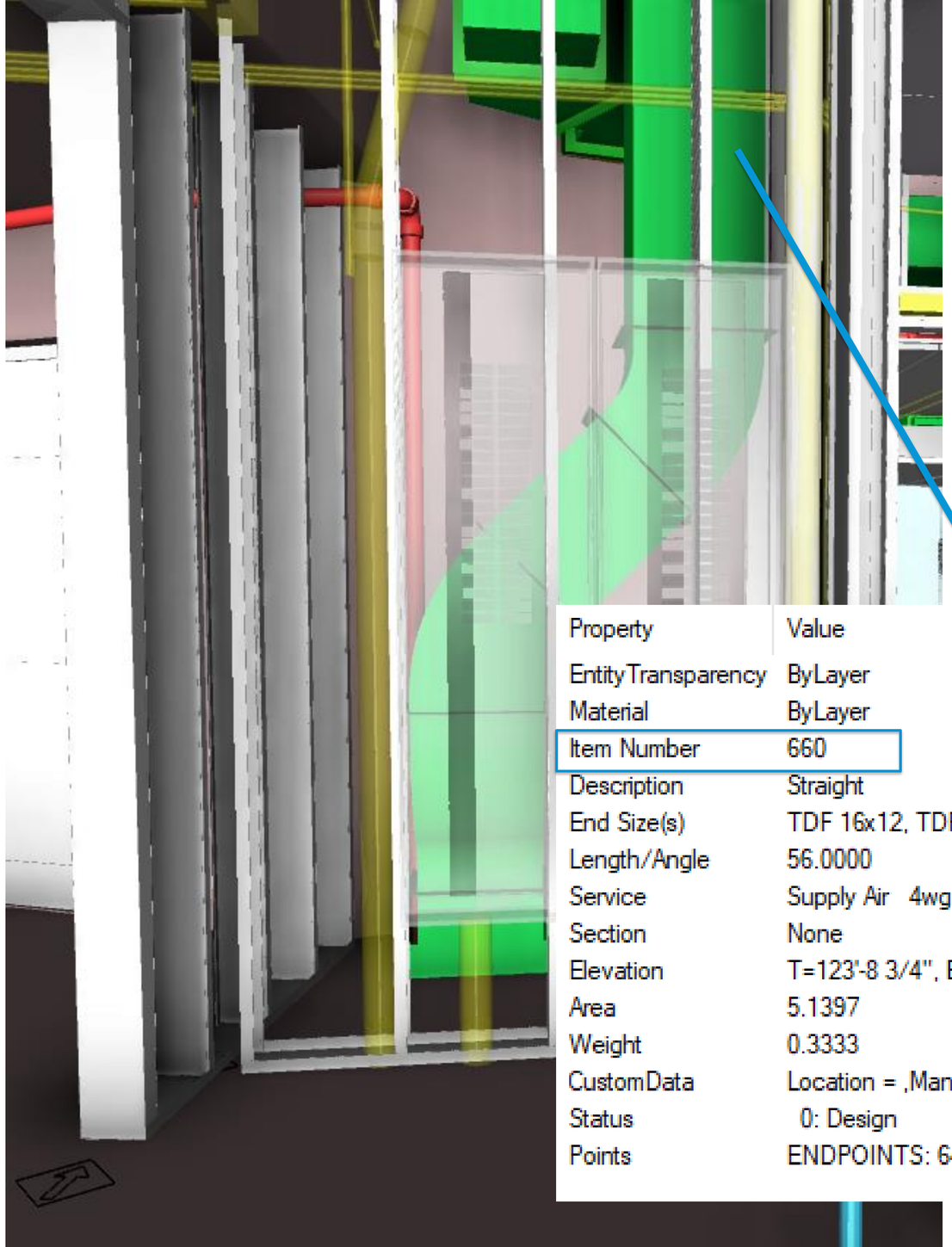
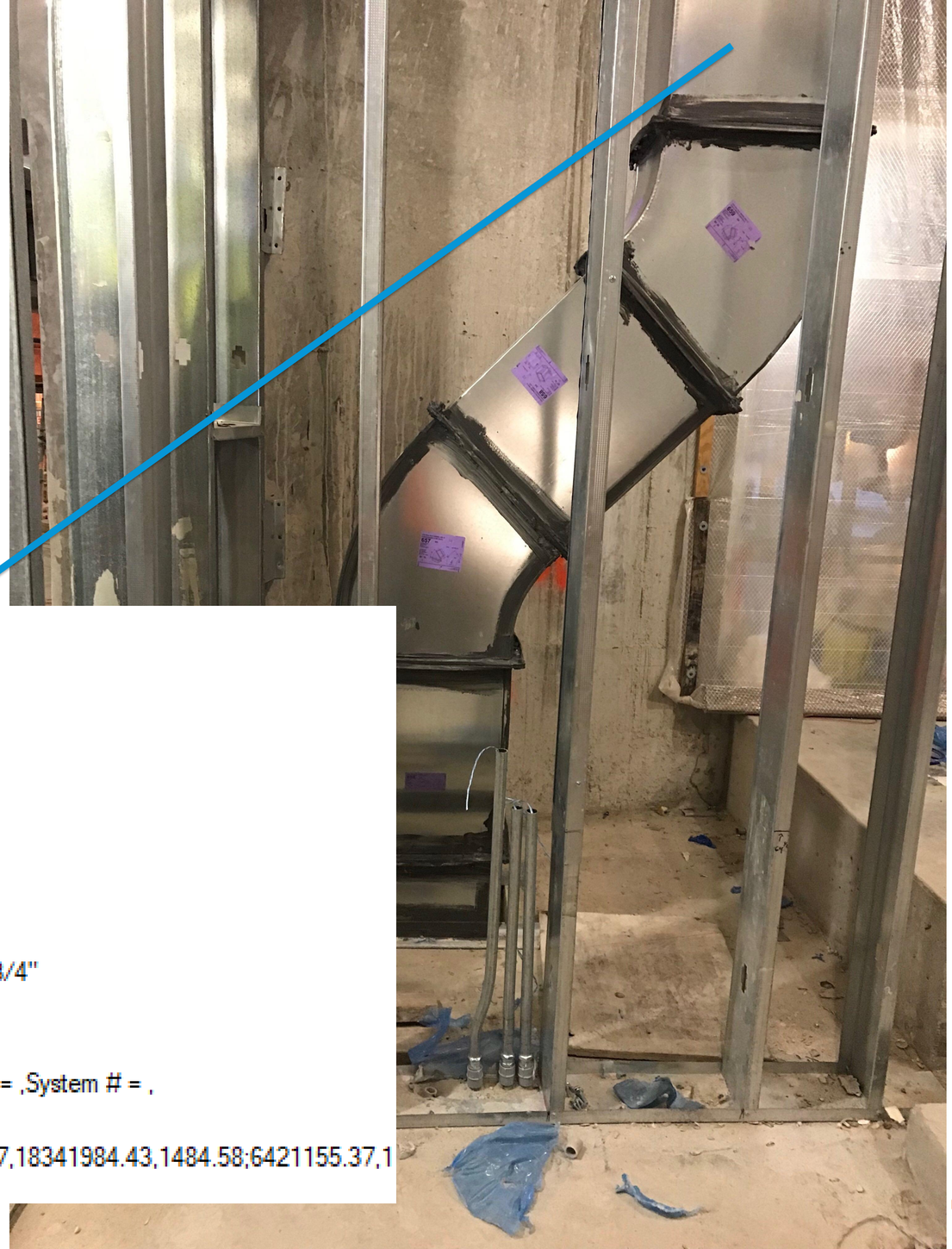


| Property | Value |
|---|---|
| EntityTransparency | ByLayer |
| Material | ByLayer |
| Item Number | 660 |
| Description | Straight |
| End Size(s) | TDF 16x12, TDF 16x12, |
| Length/Angle | 56.0000 |
| Service | Supply Air 4wg |
| Section | None |
| Elevation | T=123'-8 3/4", B=123'-8 3/4" |
| Area | 5.1397 |
| Weight | 0.3333 |
| CustomData | Location = ,Manufacturer = ,System # = , |
| Status | 0: Design |
| Points | ENDPOINTS: 6421155.37,18341984.43,1484.58;6421155.37,1 |




467
649
453

assemble
AN AUTODESK COMPANY

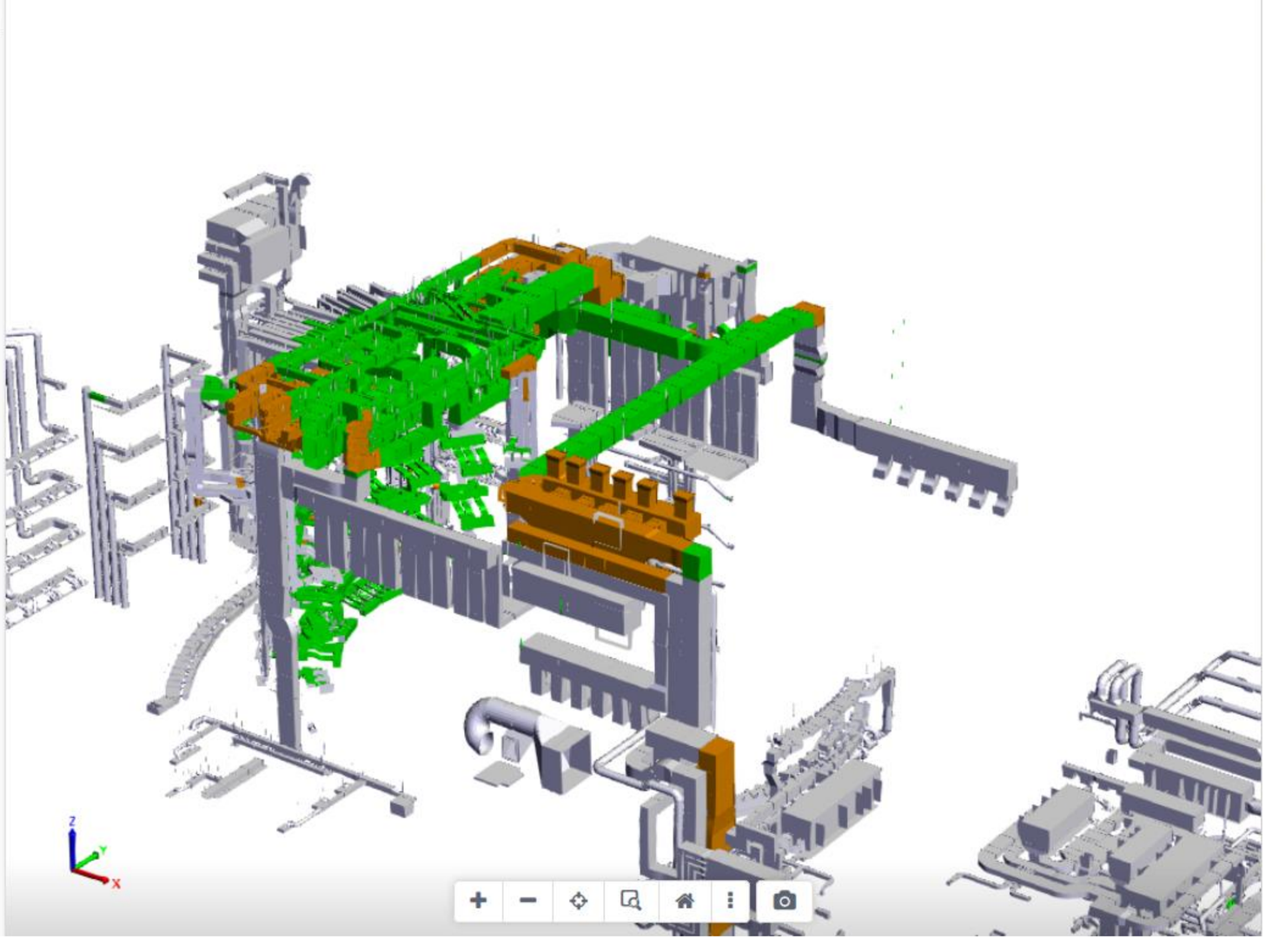
# DPAC-II

Report

Show Changes

Group by: Installation Tracking | Columns | $ Estimate | Import/Export

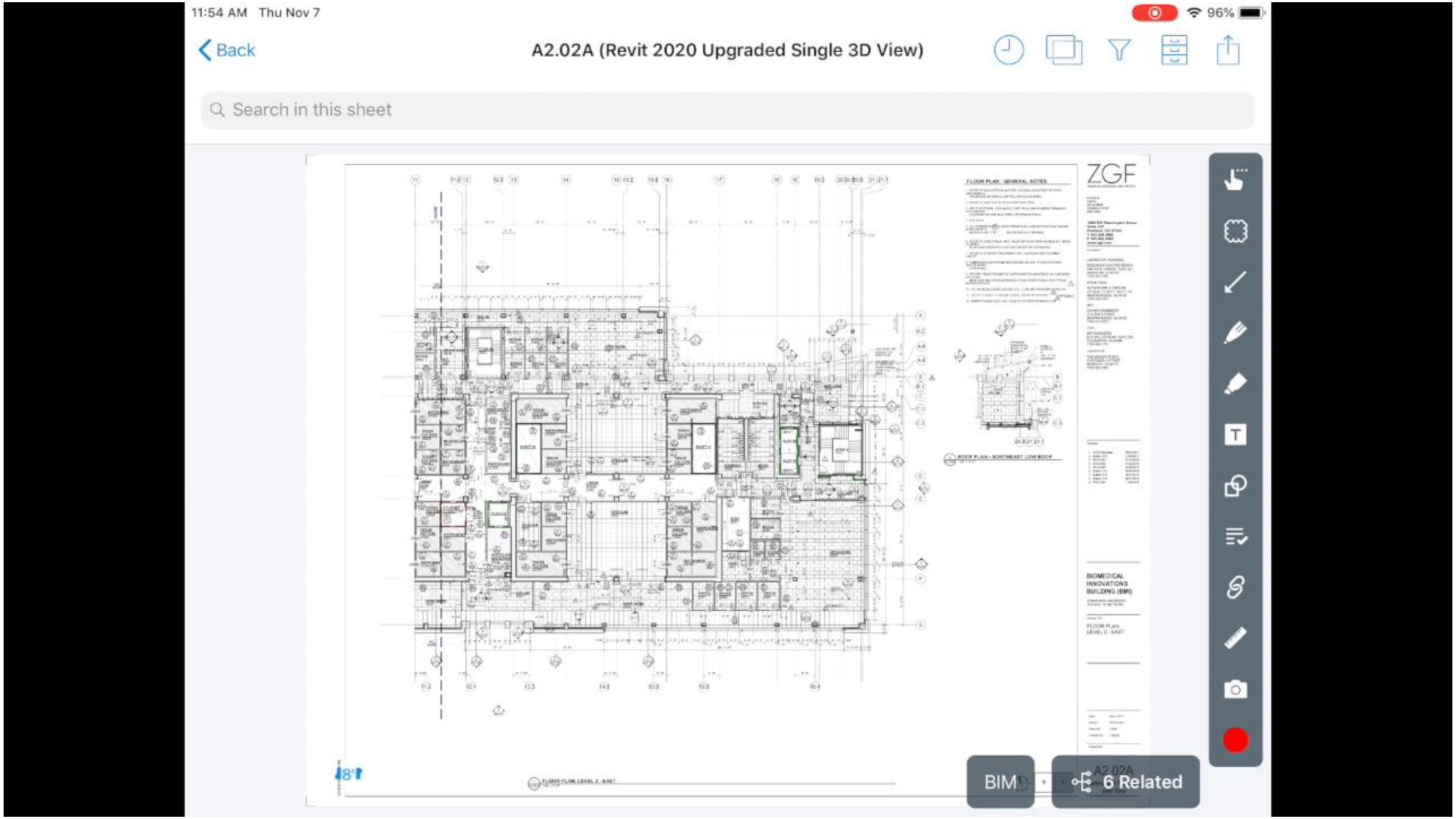
| Name | Quantity | Unit | Item Number | Location |
|---|---|---|---|---|
| Installed | 2,885 | EA | | |
| Not Assigned | 13,115 | EA | | |
| On Site | 690 | EA | | |



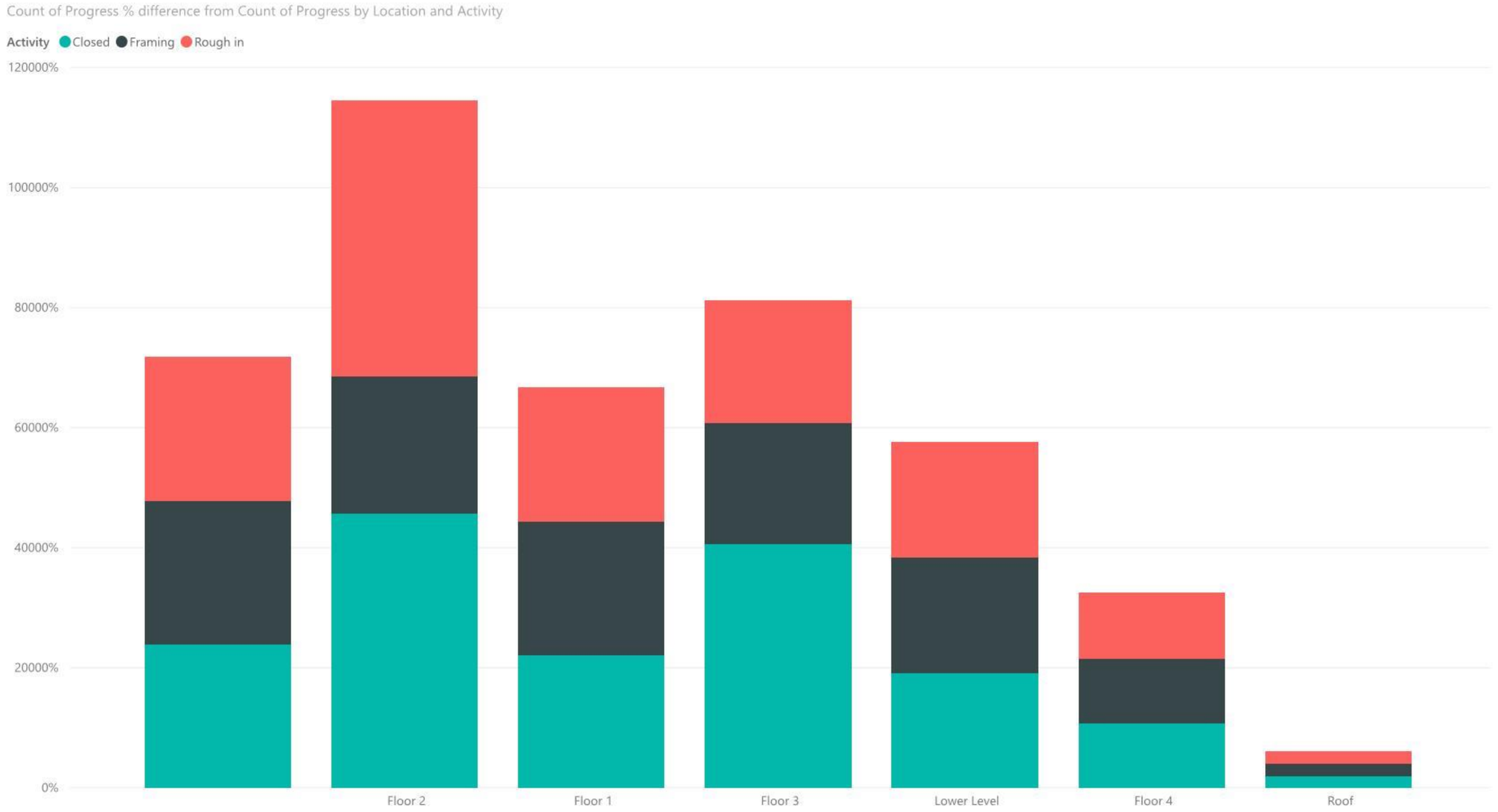
# Progress Tracking

Rough-In

# PlanGrid BIM & Progress Tracking

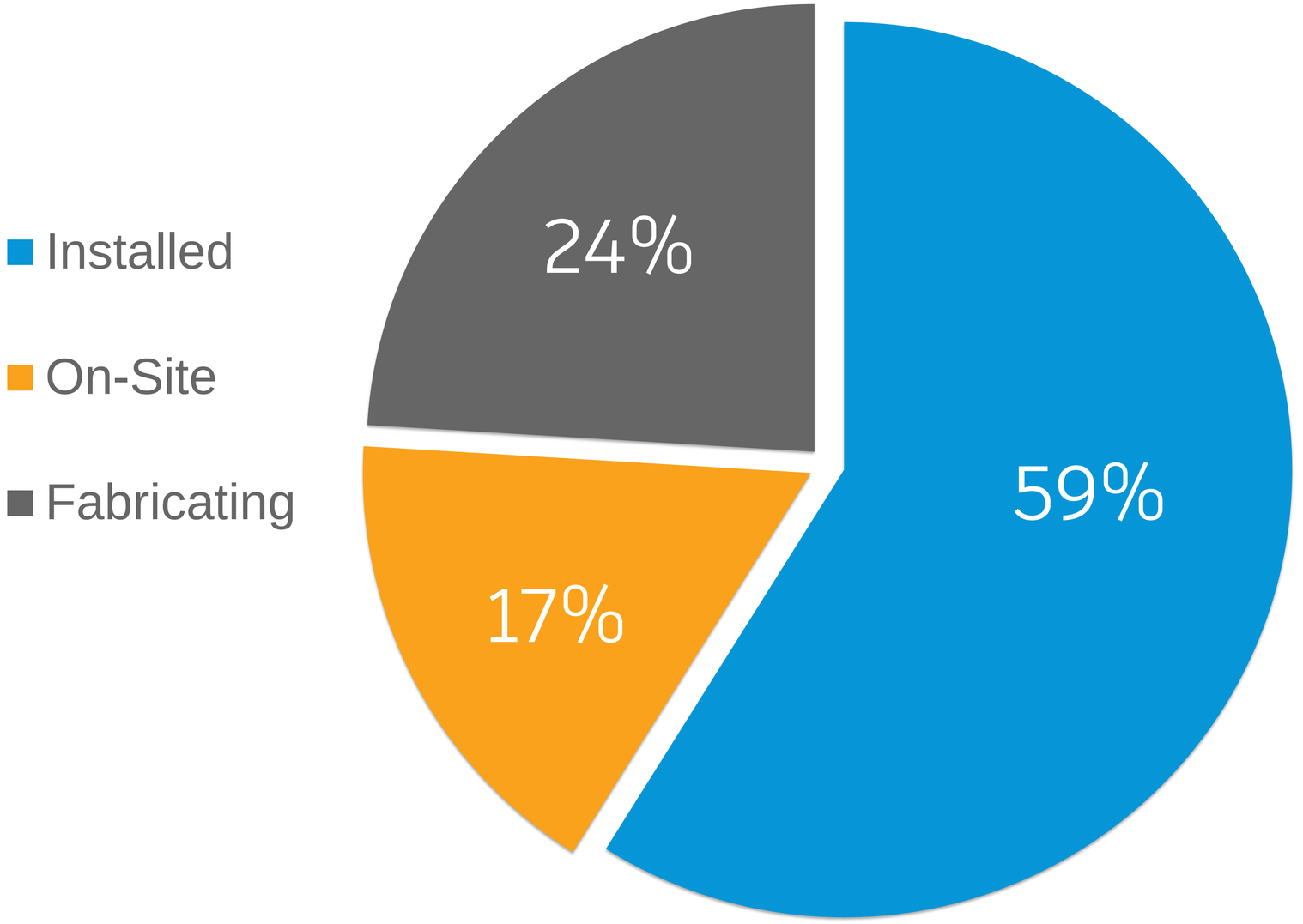


# Focused Data Reporting

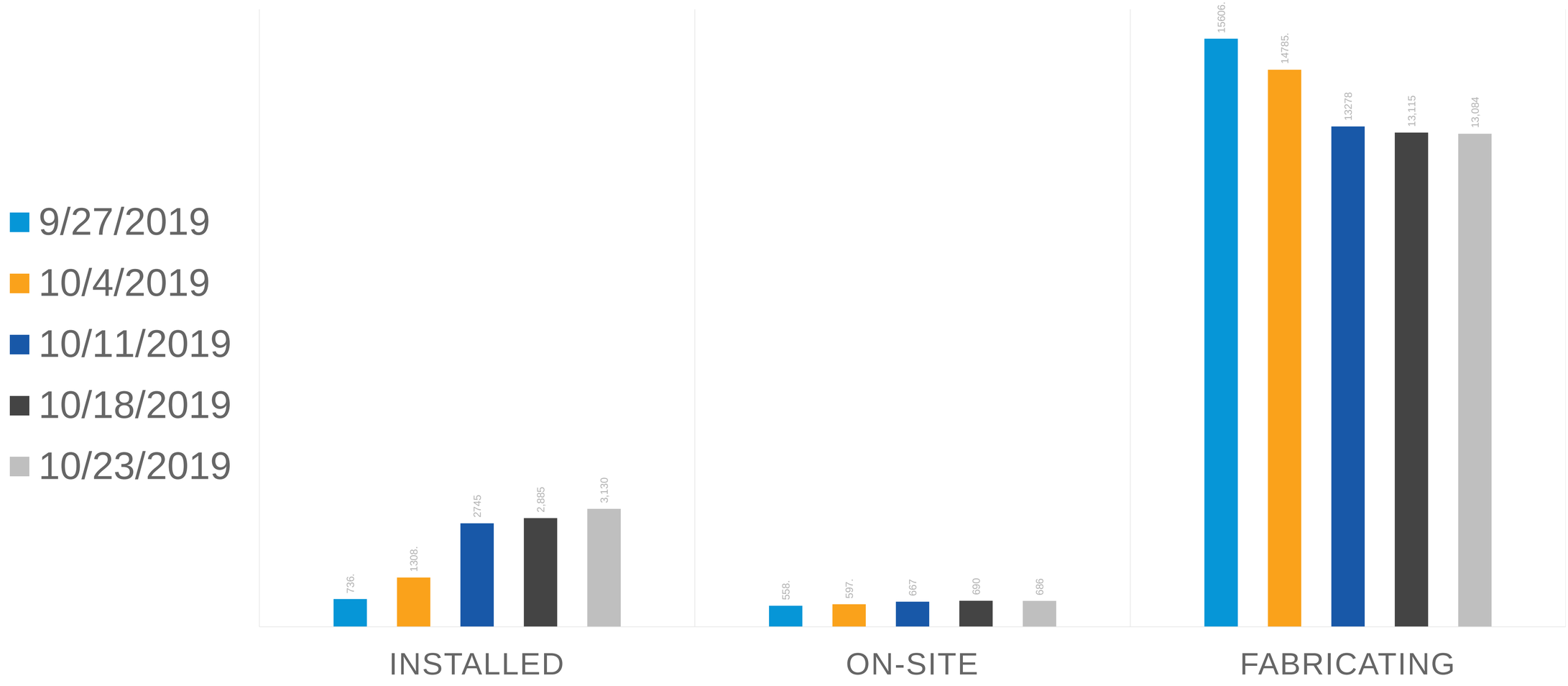


# ACT

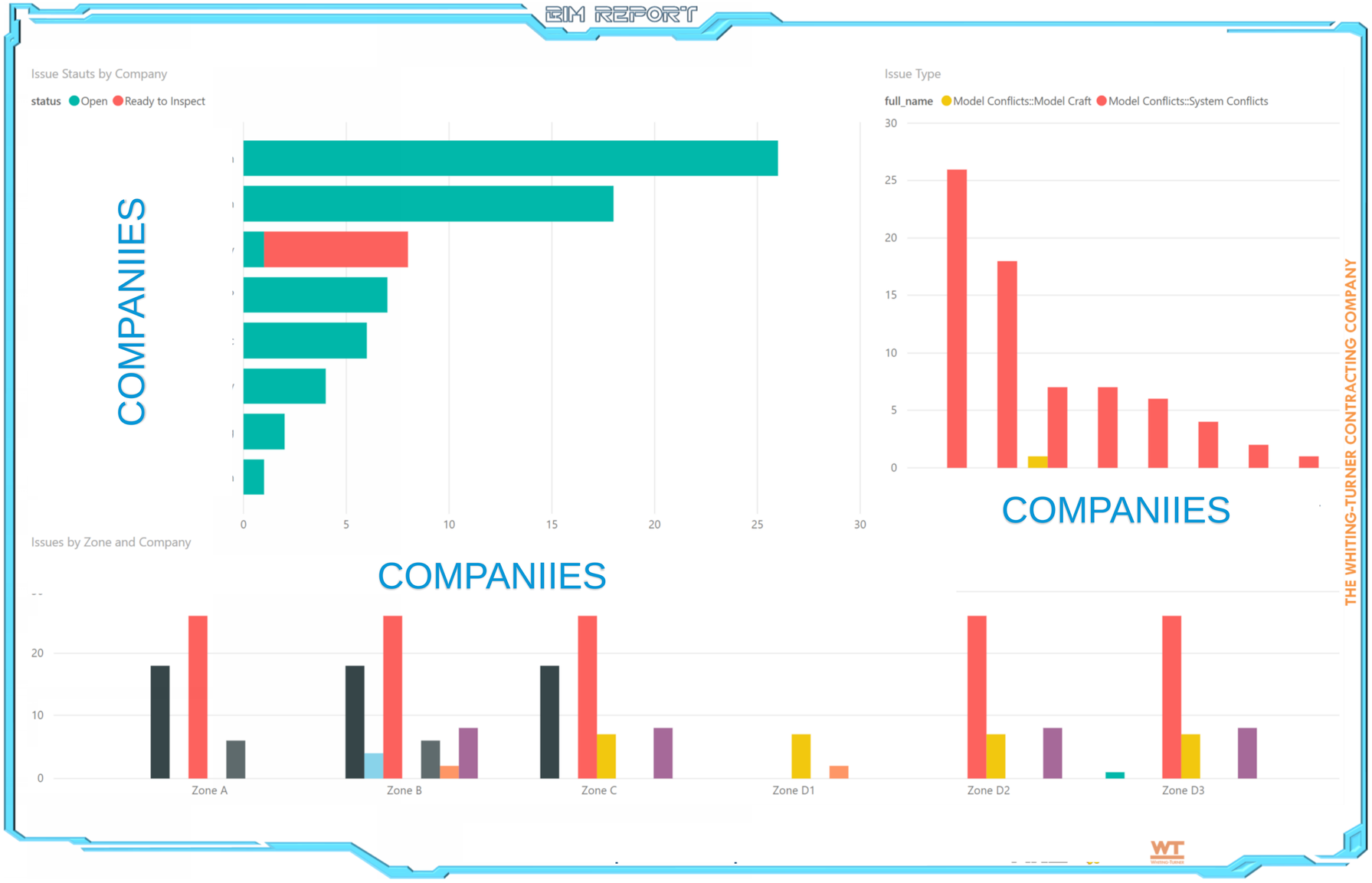
# Duct Status



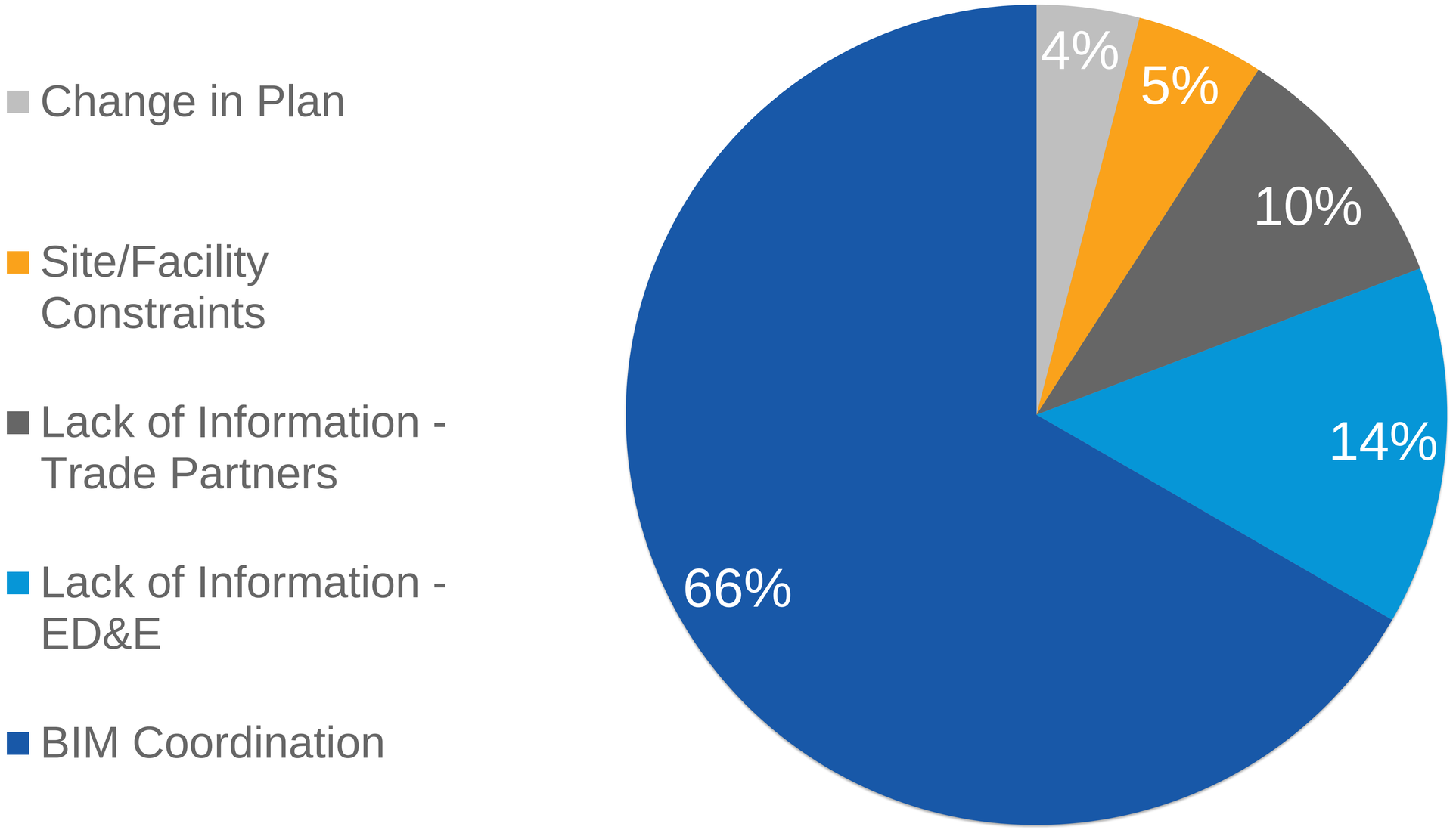
# Duct Status


9/27/2019
10/4/2019
10/11/2019
10/18/2019
10/23/2019
736.
1308.
2745
2,885
3,130
558.
597.
667
690
686
15606.
14785.
13278
13,115
13,084
INSTALLED
ON-SITE
FABRICATING

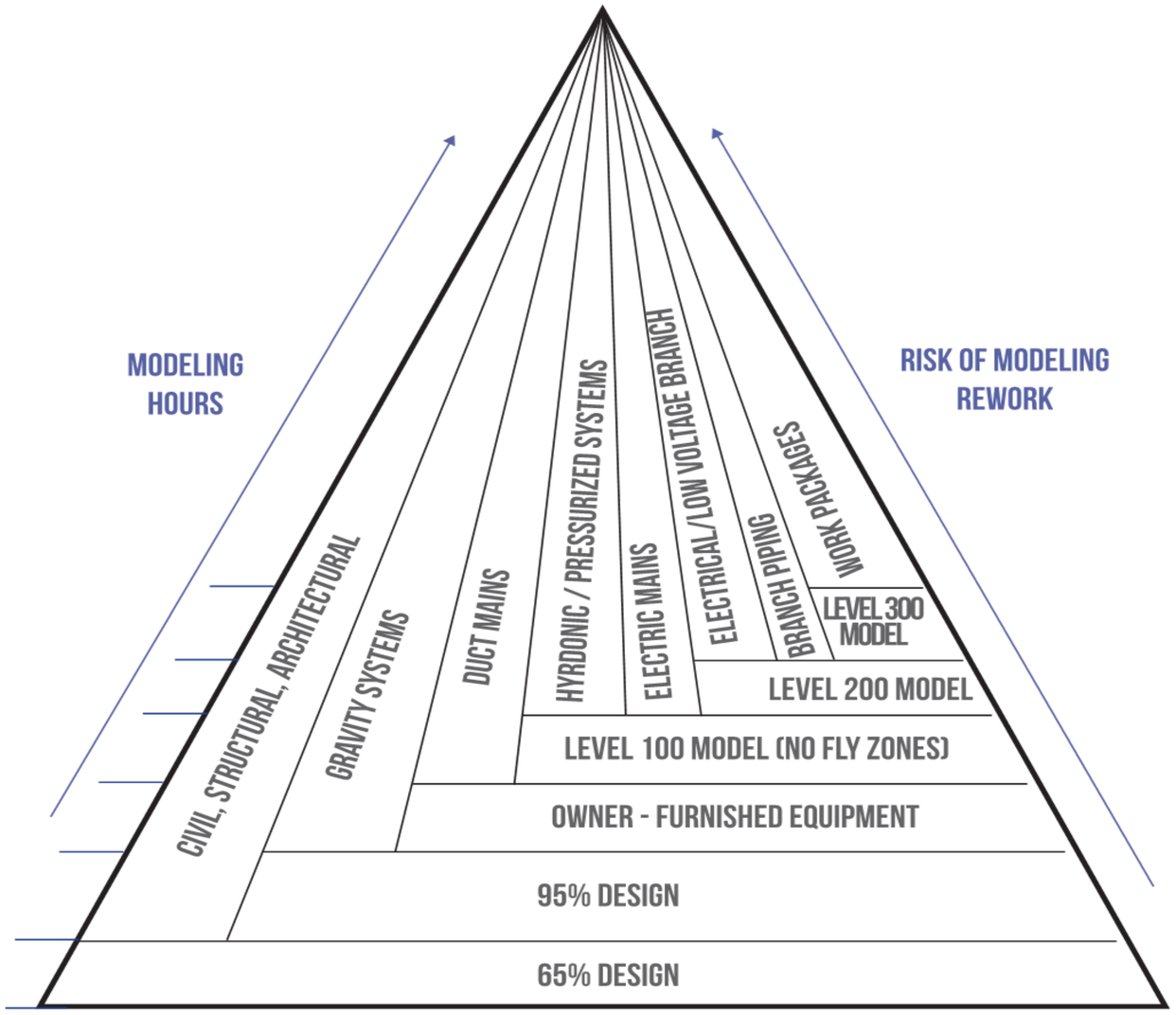
# Issue Resolution Reports



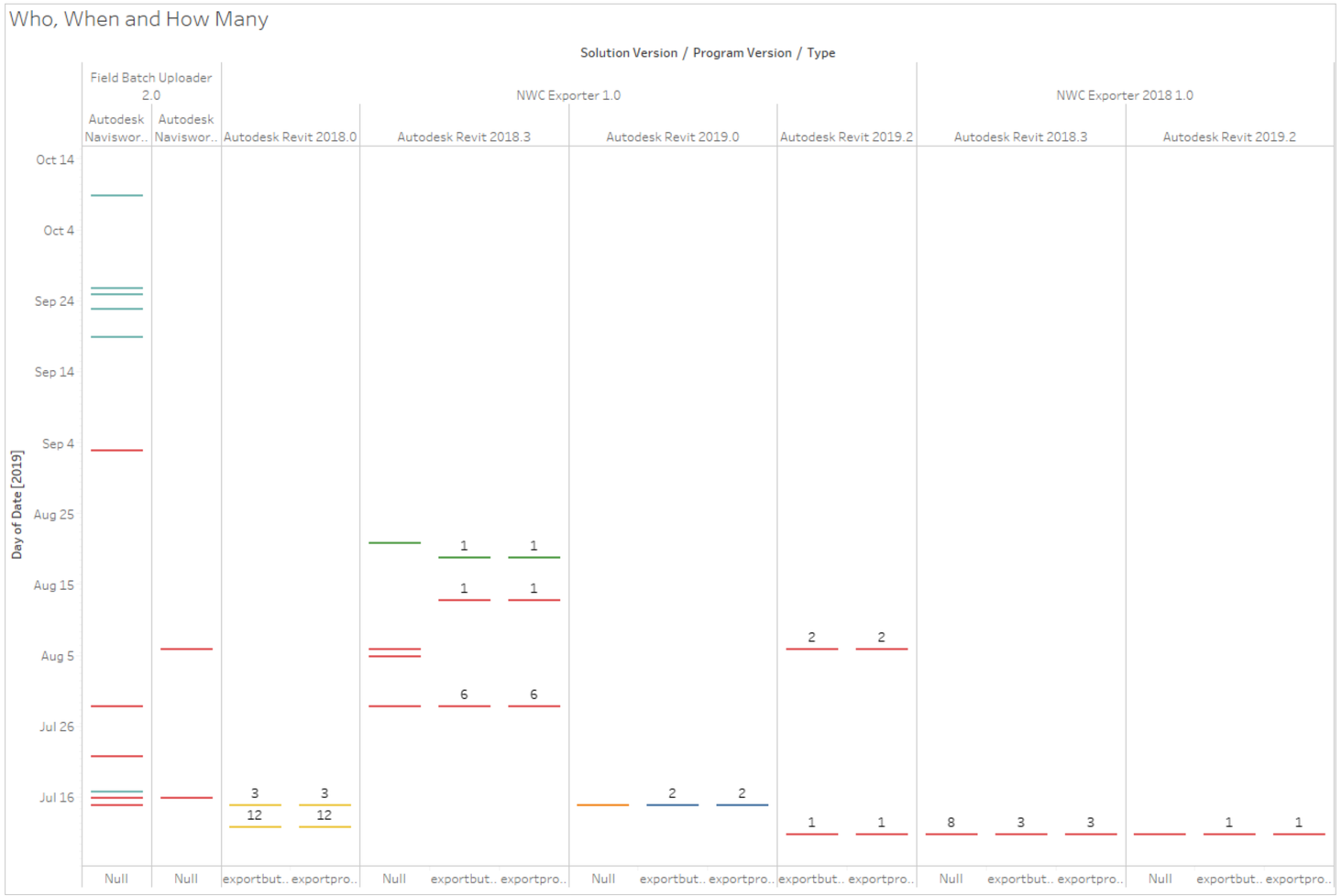
# Root Cause Analysis/Five Why

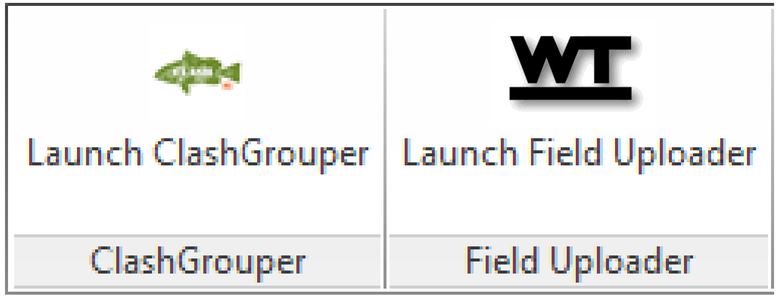


# Team Communications



# Planning


Who, When and How Many
Solution Version / Program Version / Type
Field Batch Uploader 2.0
NWC Exporter 1.0
NWC Exporter 2018 1.0
Autodesk Naviswor..
Autodesk Naviswor..
Autodesk Revit 2018.0
Autodesk Revit 2018.3
Autodesk Revit 2019.0
Autodesk Revit 2019.2
Autodesk Revit 2018.3
Autodesk Revit 2019.2
Day of Date [2019]
Oct 14
Oct 4
Sep 24
Sep 14
Sep 4
Aug 25
Aug 15
Aug 5
Jul 26
Jul 16
Null
exportbut..
exportpro..


Launch ClashGrouper
Launch Field Uploader
ClashGrouper
Field Uploader


ExportNWC
ExportNWC

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