



**A New Concept in Practice:  
Leading the Delivery Process**

November 2014

## Moderator

Mark Dietrick

Director of Services, Case Technologies, Inc.



## Course Description

Recognizing a need for change to address demands for more efficiency, project complexities and sustainable results, the AEC industry is slowly transitioning to more integrated project delivery methods, fostering more collaboration. Concurrently, some firms are leveraging the benefits of BIM's emerging technology to not only work smarter, but to ultimately facilitate this change in the way projects are delivered.

The slow progression of this transition is often linked to those practitioners that are resisting the required cultural shift in the way designers practice. Risk acceptance, traditionally the architect's biggest nightmare, may be the key reason for this ambivalence, yet at the same time, prevents more potential reward. Presenters of this course will review the principles of IPD and collaboration, and discuss why they may intimidate design professionals. Additionally, new approaches that integrate present at-risk contracts to a more collaborative shared risk/reward approach will also be addressed. To that end, the presenters will demonstrate how architects have an opportunity to participate in this collaborative project orchestration, potentially differentiating themselves in today's competitive project climate.

## Learning Objectives

1. Understand the need to transition from traditional linear Design Bid Build processes to a more collaborative IPD workflow.
2. Recognize the difference between cooperation and collaboration
3. Define creative approaches to structure contract modifications to achieve a more collaborative approach
4. Leverage the work the AIA/MBA of Western PA Joint Committee's Collaboration Task Force is producing to encourage owners to prescribe more integrated delivery systems.

## Overview

1. Industry Challenges
2. Need to Change
3. Collaboration
4. Integration
5. IPD-ish Contract Modifications
6. Wexford Case Study

## Presenters

**Ron Dellaria**

Chief Compliance Officer



**Brian Skripac**

Director of Digital Practice





# INDUSTRY CHALLENGES

## Our Industry is Changing

Erosion of Professional Fees

Commoditization of Design Services

Owner Demand for Value

Waste and Lack of Productivity

Complexity of Projects

Lofty Sustainability Goals

Technological Evolution (Software)

**WE MUST BE PROACTIVE AND EMBRACE CHANGE!**

## Current Delivery System

Owner hires PM whose primary goal is budget driven

- Owner's reps are usually not architects

- Do not understand the creative nature of iterative design

- A/E role is reduced to commodity status

Lack of mutual interest between the parties - Owner is a referee

Adversarial and Built on Distrust

Process ignores the capabilities of technology

- Based upon 2D paper copies

- QA/QC in linear delivery adds no value

- 80% of the work is done before a hard number is established

## Collaborative Project Delivery

### Why is it important now?

‘Ours is the only trillion dollar industry in the history of the world in which misguided owners demand processes that increase cost and reduce quality.’

The Owner’s Dilemma, 2010  
Barbara White Bryson  
Canan Yetmen





NEED TO  
CHANGE

SO HOW DO WE GET THERE?



## Paving the Way to Our Future

We need to change our mindset

- Collaboration, communication and creativity

- Embrace change

We need to form teams around projects

- Include all project stakeholders

- The right team member at the right time

We need to embrace collaboration



ELIMINATING CONFRONTATION

A man wearing an orange hard hat and a red and black plaid shirt is looking at a woman. The woman has a very tall, spiky hairstyle made of dark hair and is wearing a purple and white patterned shirt. The background is a plain, light gray.

BUT CAN IT WORK?



COLLABORATION

# Collaboration

## 3 Types of Collaboration Levels

TYPICAL	Not contractually required
ENHANCED	Some contractual requirements (philosophy)
REQUIRED	Required by multi-party contracts (delivery)

## Collaborative Principles Used

### **Behavioral**

Mutual Trust and Respect  
Open Communication & Willingness to Collaborate  
Collaborative Innovation and Decision Making

### **Organizational**

Strong Leadership  
Early Jointly Developed Goal Definition  
Intensified Planning  
Appropriate Technology and Implementation Tools  
Co-Location

### **Contractual**

Mutual Risk and Reward (50/50/50)  
Financial Incentives Tied to Team Goals  
Earlier Involvement of Key Participants  
Multi-Party Contracts & Fiscal Transparency



INTEGRATION

# Integrated Project Delivery

**Everyone Should Have Skin in the Game**

Tips for Managing Risks

Align Incentives

Flatten Organizational Structure

Establish Ground Rules for Collaboration

Define the Deliverables

Measure Performance on Commitment to Cost & Quality

# Integrated Project Delivery

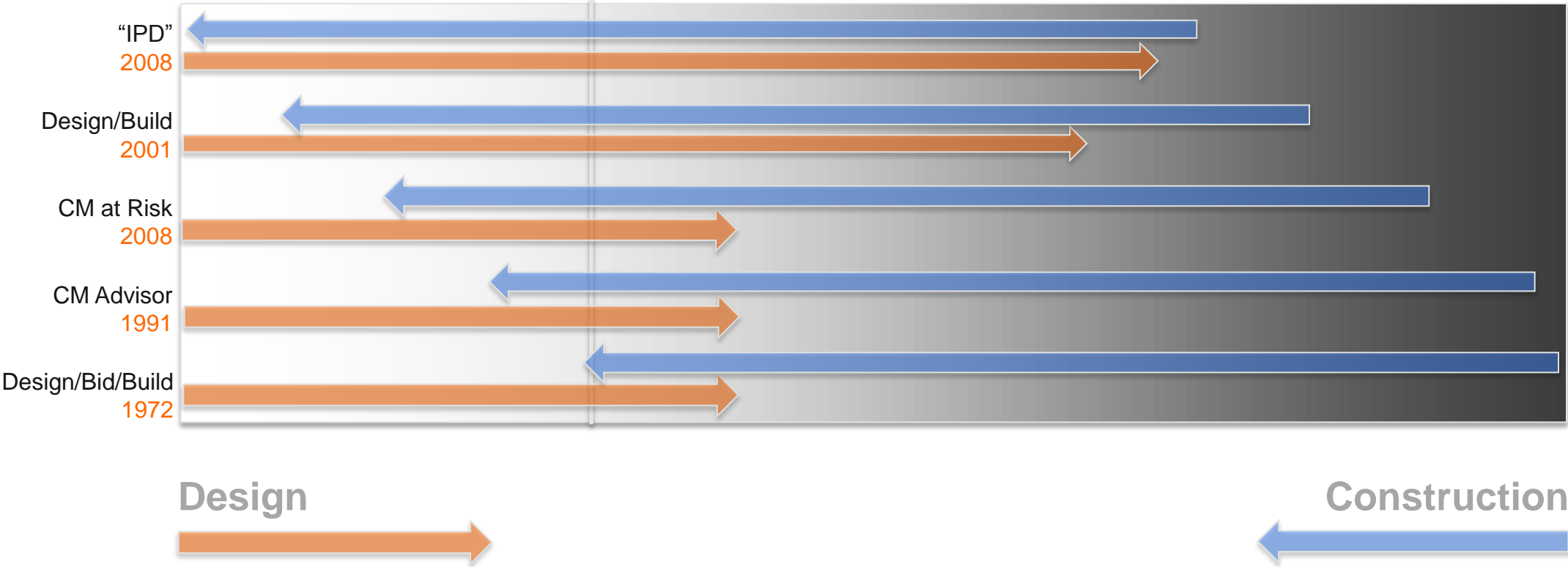
## Philosophy

In simple terms IPD is getting the right people at the table, at the right time, with the right information

The linchpin is collaboration from cradle to grave

The basis is **TRUST**

# Boundaries are Beginning to Blur



# ASTORINO

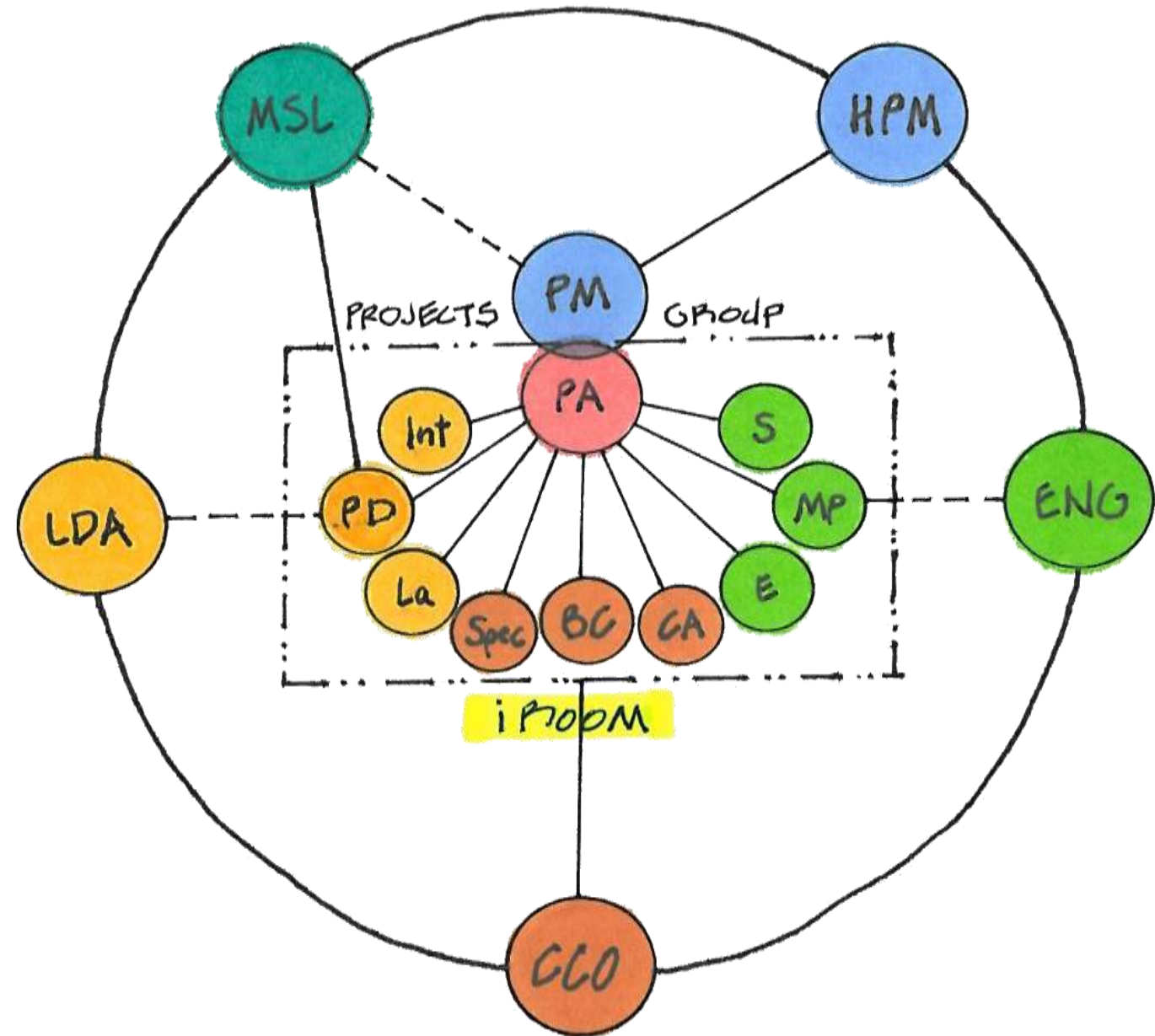


Our Integrated Delivery Process

## Collaborative Project Management



## Integrated Project Team



## The Design i-Room



Resolving issues **NOT** creating them

A thin vertical black line is positioned to the left of the text.

# ADAPTING THE PROCESS IPD

## Adapting Our Process

**INTEGRATED PROJECT DELIVERY** strategically realigns participant roles, underlying motivations, and sequences of activities with a **new basis of operation**:

Integration	Where all project participants are on board from the beginning
Collaboration	The cooperative mindset that all parties must remain committed to working together for the benefit of the project
Information Sharing	Open and enhanced communication through the use of appropriate technologies and software - “ <b>interoperability</b> ”

## Project Delivery Methods

When discussing project delivery methods it's important to **distinguish between delivery systems** and other contract-related trends

Design-Bid-Build, Construction Management and Design-Build **are** the three project delivery systems most commonly employed in North America

DESIGN-BID-BUILD

(**A201**) General Conditions of the Contract

CONSTRUCTION  
MANAGEMENT

(**A201 CMA**) General Conditions of the Contract

DESIGN-BUILD

(**A141, Exhibit A**) General Conditions of the Contract

## Adapting the Process

### INTEGRATED PROJECT DELIVERY (1 to 3 Parties)

#### **Multiple Party (B195 + A195 + A205)**

GMP

BIM Facilitated

Conventional or Fast-Track

#### **Multi-Party (C191)**

Single Agreement for All Participants

Cost & Performance Goal Oriented

#### **Single Purpose Entity (C195 + C196)**

Ad Hoc Limited Liability Company

Utilizing IPD Principles

# Modified Single-Source Agreement

## CONSTRUCTION MANAGEMENT AT-RISK

### **Governing Contract (B103 & A133) + (A201)**

Fast-Track

GMP

Shared Savings (50/50/50)

### **BIM Addendum (E201 + E202)**

Digital Data Protocol Exhibit

Modeling Protocol Exhibit

### **BIM Project Execution Plan (BEP)**

Phased Documents Release (50% CDs)

Collaborative Design Assist

# Astorino – Owner Contract Procedures Governing Contract

## MASTER AGREEMENT

### Exhibit A

AIA B103-2007 Modified

Scope of Work

Master Schedule

Rate Schedule

Add Services

Fee Dispute Resolution

### Exhibit B

AIA A134-2009 Modified

A 201 General Conditions

### Exhibits C, D & E

Electronic Release Data

Non-Disclosure Agreement

Conflict of Interest

**L.D. ASTORINO & ASSOCIATES, LTD**  
**ASTORINO DEVELOPMENT COMPANY**  
**MASTER AGREEMENT (EFFECTIVE SEPTEMBER 20, 2011)**

**Exhibit A:**

**Exhibit B:**

**Exhibit C:**

**Exhibit D:**

**Exhibit E:**

# Astorino – Owner Contract Procedures Affiliate Contract

## PROJECT SPECIFIC (AHN H+W PAVILION)

### Exhibit A

AIA B103-2007 Modified

Scope of Work

Master Schedule

Rate Schedule

Add Services

Fee Dispute Resolution

### Exhibit B

AIA A134-2009 Modified

A 201 General Conditions

### Exhibits C, D & E

The Flow Down Provisions

## AIA® Document B103™ – 2007

*Standard Form of Agreement Between Owner and Architect for a Large or Complex Project*

AGREEMENT made as of the 21st day of December in the year 2012

BETWEEN the Architect's client identified as the Owner:

Highmark, Inc.  
120 Fifth Avenue  
Pittsburgh, PA 15222

and the Architect:

L.D. Astorino & Associates, LTD.

#### ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A

## AIA® Document A133™ – 2009

*Standard Form of Agreement Between Owner and Construction Manager as Constructor where the basis of payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price*

AGREEMENT made as of the 21st day of December in the year 2012

(Paragraph deleted)

BETWEEN the Owner:

Highmark, Inc.  
120 Fifth Avenue  
Pittsburgh, PA 15222

and the Construction Manager:

Astorino Development Company  
235 Fort Pitt Boulevard  
Pittsburgh, PA 15222

for the following Project:

Wexford Medical Mall  
Pine Township, PA

The Architect:

L.D. Astorino & Associates, LTD  
227 Fort Pitt Boulevard  
Pittsburgh, PA 15222

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This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

AIA Document A201™–2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

# Astorino – Owner Contract Procedures Addendum

## AMENDMENT (AHN H+W PAVILION)

- Exhibit A
- GMP Price Amendment
- Price
- Allowances
- Assumptions
- Conditions
- Scope of Work
- Schedule

**Guaranteed Maximum Price Amendment**

for the following PROJECT:  
*(Name and address or location)*

Wexford Medical Mall  
12311 Perry Highway  
Wexford, PA 15090

THE OWNER:  
*(Name, legal status and address)*

Highmark, Inc.,  
120 Fifth Avenue  
Pittsburgh, PA 15222

THE CONSTRUCTION MANAGER:  
*(Name, legal status and address)*

Astorino Development Company  
235 Fort Pitt Boulevard  
Pittsburgh, PA 15222

**ARTICLE A.1**

**§ A.1.1 Guaranteed Maximum Price**

Pursuant to Section 2.2.6 of the Agreement, the Owner and Construction Manager hereby amend the Agreement to establish a Guaranteed Maximum Price. As agreed by the Owner and Construction Manager, the Guaranteed Maximum Price is an amount that the Contract Sum shall not exceed. The Contract Sum consists of the Construction Manager's Fee plus the Cost of the Work, as that term is defined in Article 6 of this Agreement.

**§ A.1.1.1** The Contract Sum is guaranteed by the Construction Manager not to exceed (\$ ), subject to additions and deductions by Change Order as provided in the Contract Documents.

**§ A.1.1.2 Itemized Statement of the Guaranteed Maximum Price.** Provided below is an itemized statement of the Guaranteed Maximum Price organized by trade categories, allowances, contingencies, alternates, the Construction Manager's Fee, and other items that comprise the Guaranteed Maximum Price.  
*(Provide below or reference an attachment.)*

**§ A.1.1.3** The Guaranteed Maximum Price is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:  
*(State the numbers or other identification of accepted alternates. If the Contract Documents permit the Owner to accept other alternates subsequent to the execution of this Amendment, attach a schedule of such other alternates showing the amount for each and the date when the amount expires.)*

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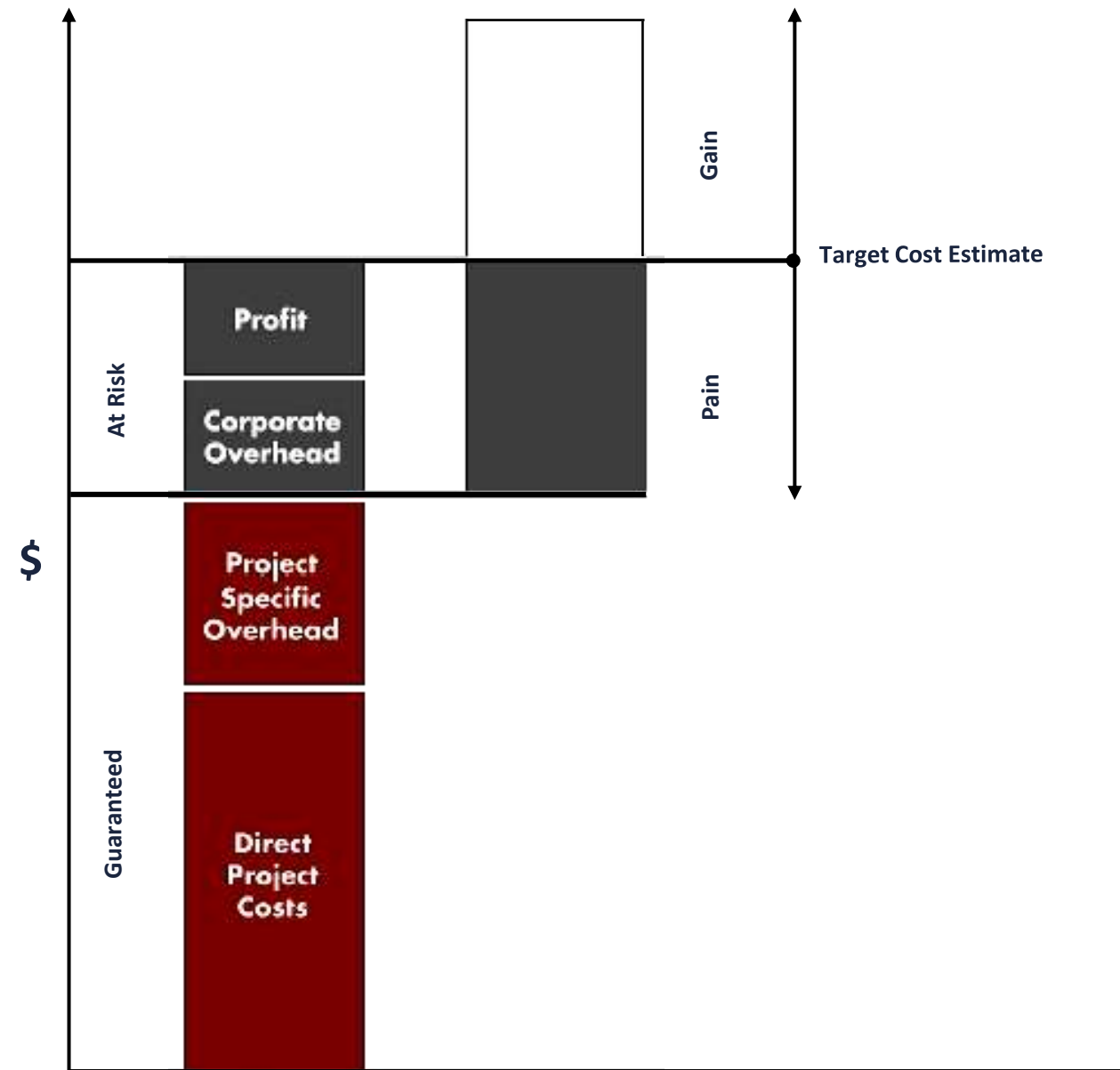
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Shared Savings  
“Incentive” Model

Contingency Split												
100% of 5% of Construction Cost (Actual)	\$3,000,000	Contingency Depletion from Approved Items in Article 2.3.2.12					Examples:	Unavailability of Materials; Acceleration				
		\$0.0						Cost Escalations; Corrective of Work				
							Claim Settlements; Legal Fees					
	25% of Remainder      Astorino      \$750,000					50% of Remainder      Owner      \$1,500,000						
	25% of Remainder	Trades	\$750,000	33.00%	Exterior					\$247,500	\$0	\$247,500
			21.00%	Interior	\$157,500					\$0	\$157,500	
			18.00%	HVAC	\$135,000					\$0	\$135,000	
			9.00%	Plumbing	\$67,500					\$0	\$67,500	
			3.00%	Fire Protect	\$22,500					\$0	\$22,500	
16.00%			Electrical	\$120,000	\$0					\$120,000		

## Integrated Project Delivery

“Show me the money”





# CASE STUDY

**Allegheny Health Network**  
**Health + Wellness Pavilion**  
Wexford, PA



A photograph of three men in an office setting. One man is standing and pointing at a document on a table, while two others are seated and looking at the same document. The scene is overlaid with a semi-transparent grey box containing text.

## Collaborative Principles Used

### Major Impetus for Higher Levels of Collaboration

Improved coordination

Cost-effectiveness

Time of performance

Validation of Astorino 360 Delivery

### Outcomes/Keys to Success

Total Project Duration – 22 months

Construction completed on time – 18 months

Steel completed 3 weeks early

Change Orders = \$0 (E/O)

Limited Shop Drawings

Prefabrication for Plumbing, Fire Protection and HVAC

Astorino – Owner Contract Procedures  
Addendum

AMENDMENT (AHN H+W PAVILION)

AIA E201

- Digital Data Protocol Exhibit
- Type
- Format
- Transmission Method
- Permitted Uses
- Affected Parties



Digital Data Protocol Exhibit

This Exhibit is incorporated into the accompanying agreement (the "Agreement") dated the 21<sup>st</sup> day of December in the year 2012  
(In words, indicate day, month and year.)

**BETWEEN:**  
(Name, address and contact information, including electronic addresses)

Highmark  
120 Fifth Avenue  
Pittsburgh, PA 15222

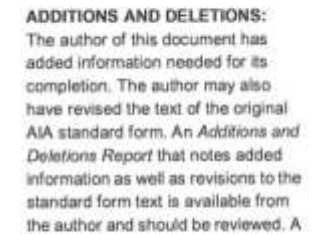
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ARTICLE 3 PROJECT PROTOCOL TABLE

§ 3.1 The parties agree to comply with the data formats, transmission methods and permitted uses set forth in the Project Protocol Table below when transmitting or using Digital Data on the Project.  
(Complete the Project Protocol Table by entering information in the spaces below. Adapt the table to the needs of the Project by adding, deleting or modifying the listed Digital Data as necessary. Use Section 3.2 Project Protocol Table Definitions to define abbreviations placed, and to record notes indicated, in the Project Protocol Table.)

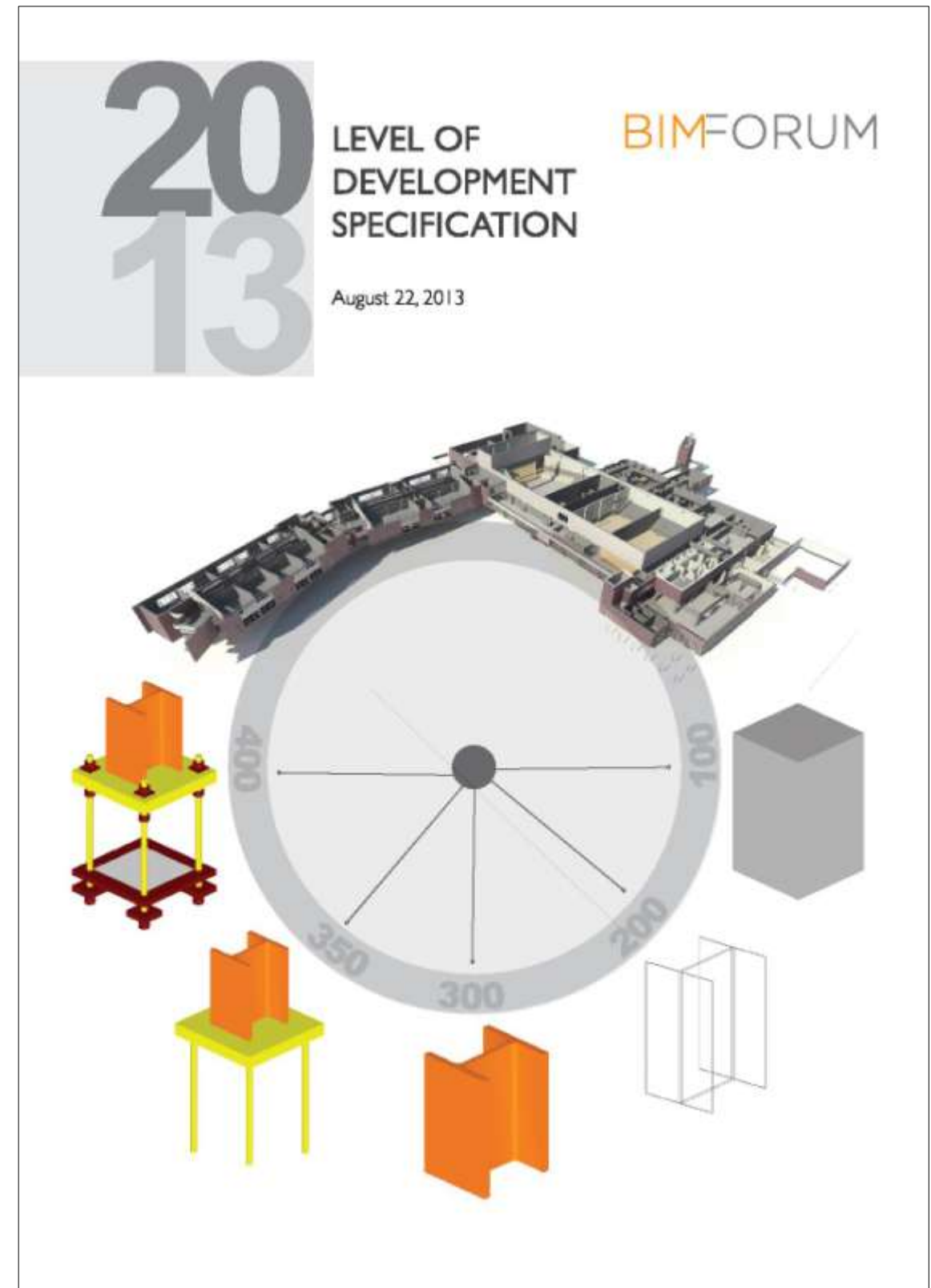
Digital Data	Data Format	Transmitting Party	Transmission Method	Receiving Party	Permitted Uses	Notes (Enter #)
§ 3.1.1 Project Agreements and Modifications	P	A,O,C	PS	A,O,C	B	
§ 3.1.2 Project communications	P	A,O,C	PS	A,O,C	B	
General communications	P	A,O,C	PS	A,O,C	B	
Meeting notices	P	A,O,C	PS	A,O,C	B	
Agendas	P	A,O,C	PS	A,O,C	B	
Minutes	P	A,O,C	PS	A,O,C	B	
Requests for information	P	A,O,C	PS	A,O,C	B	
Other:	P	A,O,C	PS	A,O,C	B	
§ 3.1.3 Architect's pre-construction submittals						
Schematic Design Documents	3D	A	PS	O,C	B	
Design Development Documents	3D	A	PS	O,C	B	
Construction Documents	3D	A	PS	O	B	
§ 3.1.4 Architect's Drawings and Specifications						
Contract Documents						
Drawings	3D,P	A	PS	O,C	B	

## Prescribed Reliability



§ 4.3 Model Element Table					Preliminary Design	Schematic Design	Design Development	Construction Documents	Construction		Note Number (See 4.4)					
Identify (1) the LOD required for each Model Element at the end of each phase, and (2) the Model Element Author (MEA) responsible for developing the Model Element to the LOD identified.																
Insert abbreviations for each MEA identified in the table below, such as "A – Architect," or "C – Contractor."																
NOTE: LODs must be adapted for the unique characteristics of each Project.																
Model Elements Utilizing CSI UniFormat™					LO D	ME A	LO D	ME A	LO D	ME A	LO D	ME A	LO D	ME A		
A URE	A1 0	Foundations	A101	Standard Foundations	100	SE	200	SE	300	SE	350	TC	400		500	
			A102	Special Foundations	100	SE	200	SE	300	SE	350	TC				
			A103	Slab on Grade	100	SE	200	SE	300	SE	350	TC				
	A2 0	Basement Construction	A201	Basement Excavation	100	CE	200	CE	300	CE	350	TC				
			A202	Basement Walls	100	SE	200	SE	300	SE	350	TC				
B SHELL	B1 0	Superstructure	B101	Floor Construction	100	SE	200	SE	300	SE	350	TC				
			B102	Roof Construction	100	SE	200	SE	300	SE	350	TC				
	B2 0	Exterior Enclosure	B201	Exterior Walls	100	A	200	A	300	A	350	TC				
			B202	Exterior Windows	100	A	200	A	300	A	350	TC				
			B203	Exterior Doors	100	A	200	A	300	A	350	TC				

## LOD Definitions Specification



# Astorino – Owner Contract Procedures Addendum

## AMENDMENT (AHN H+W PAVILION)

### AIA E202

#### BIM Protocol Exhibit

Who

MEAs

What

LODs

Why

Prescribed Reliability

### BEP

#### BIM Project Execution Plan

People - Process - Technology

BIM Use Cases

Model Deliverables

Collaborative Processes

Schedule-based

ASTORINO

#### BIM Execution Plan

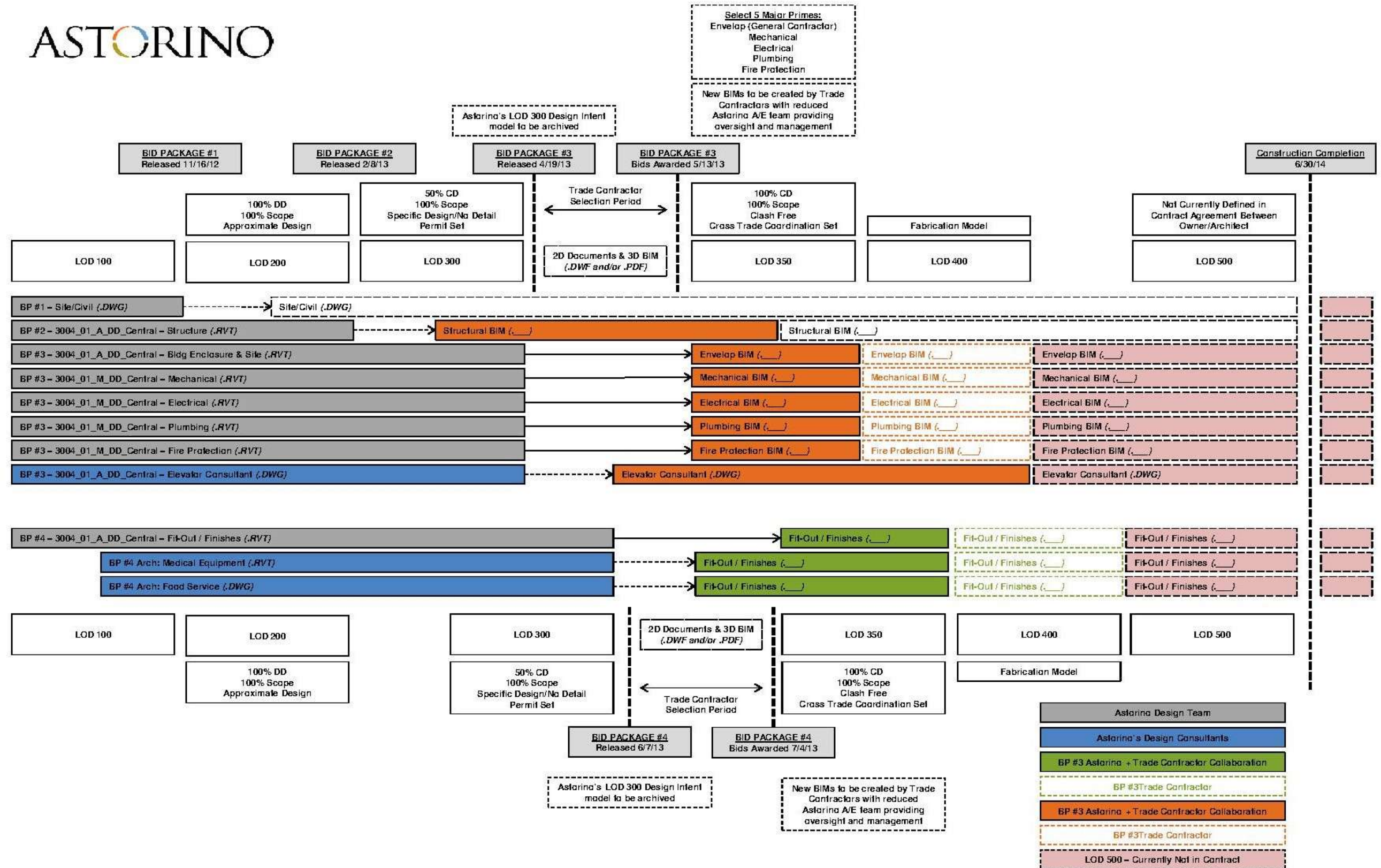
Version 1.3

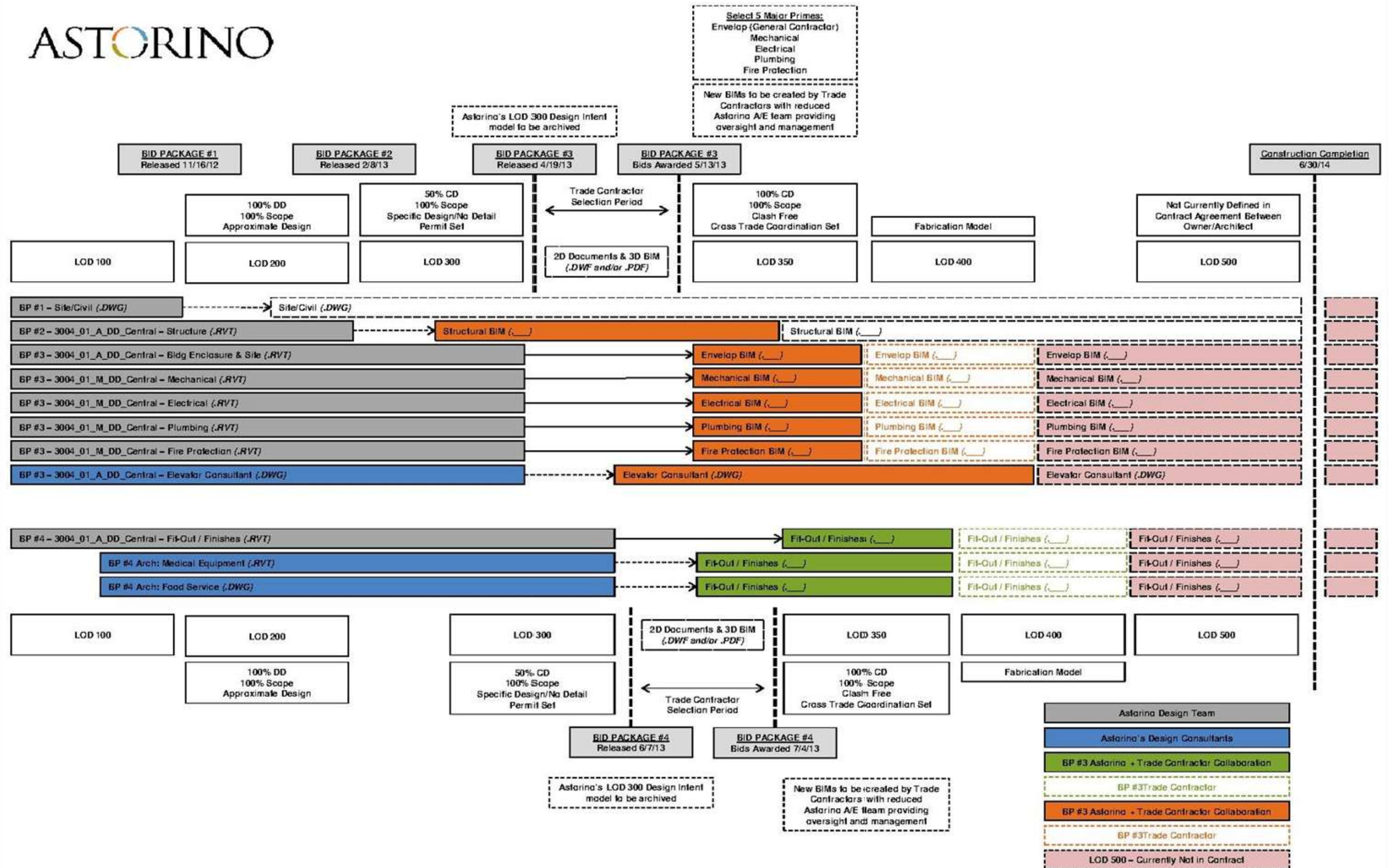


#### Wexford Medical Mall

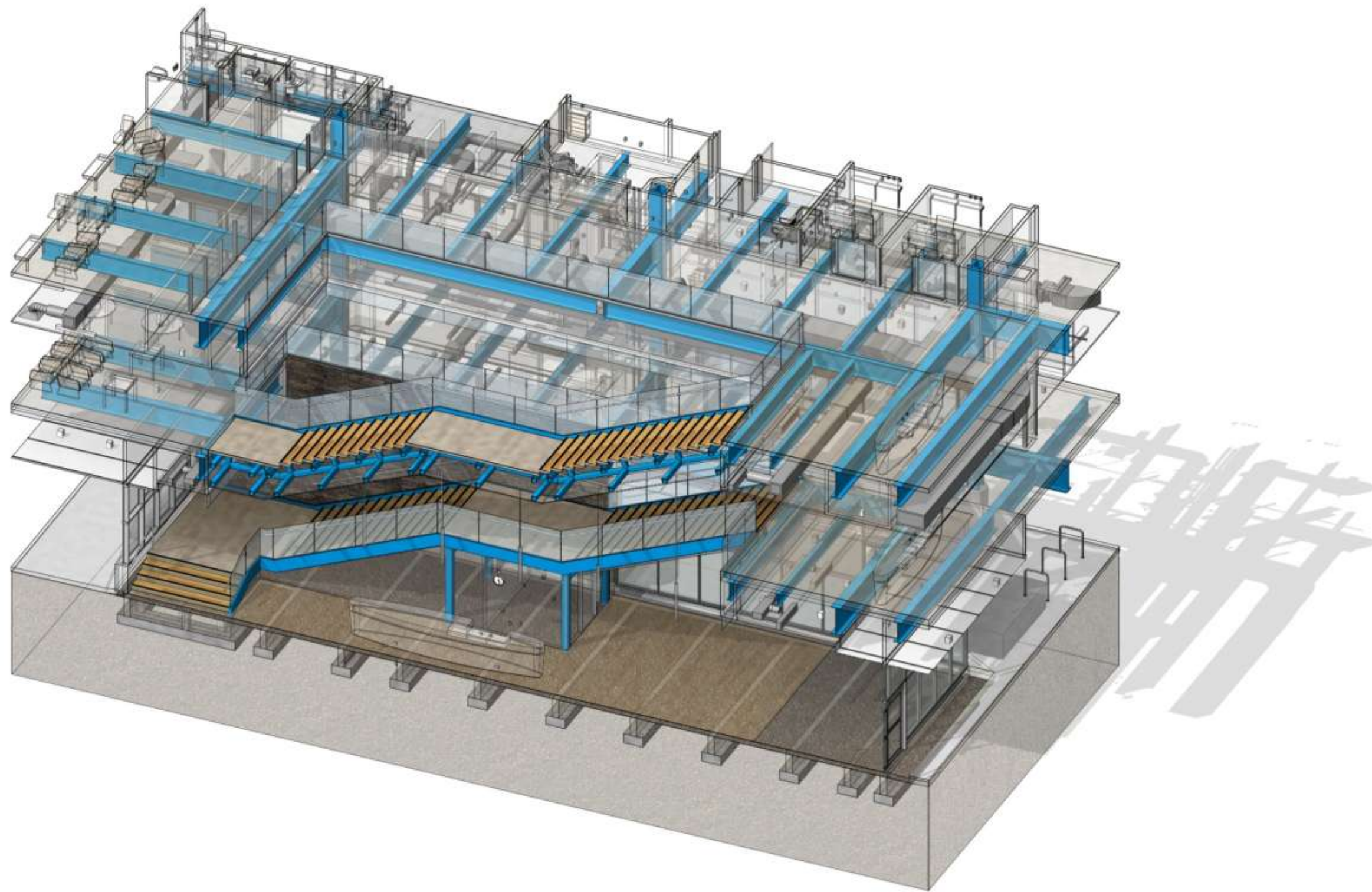
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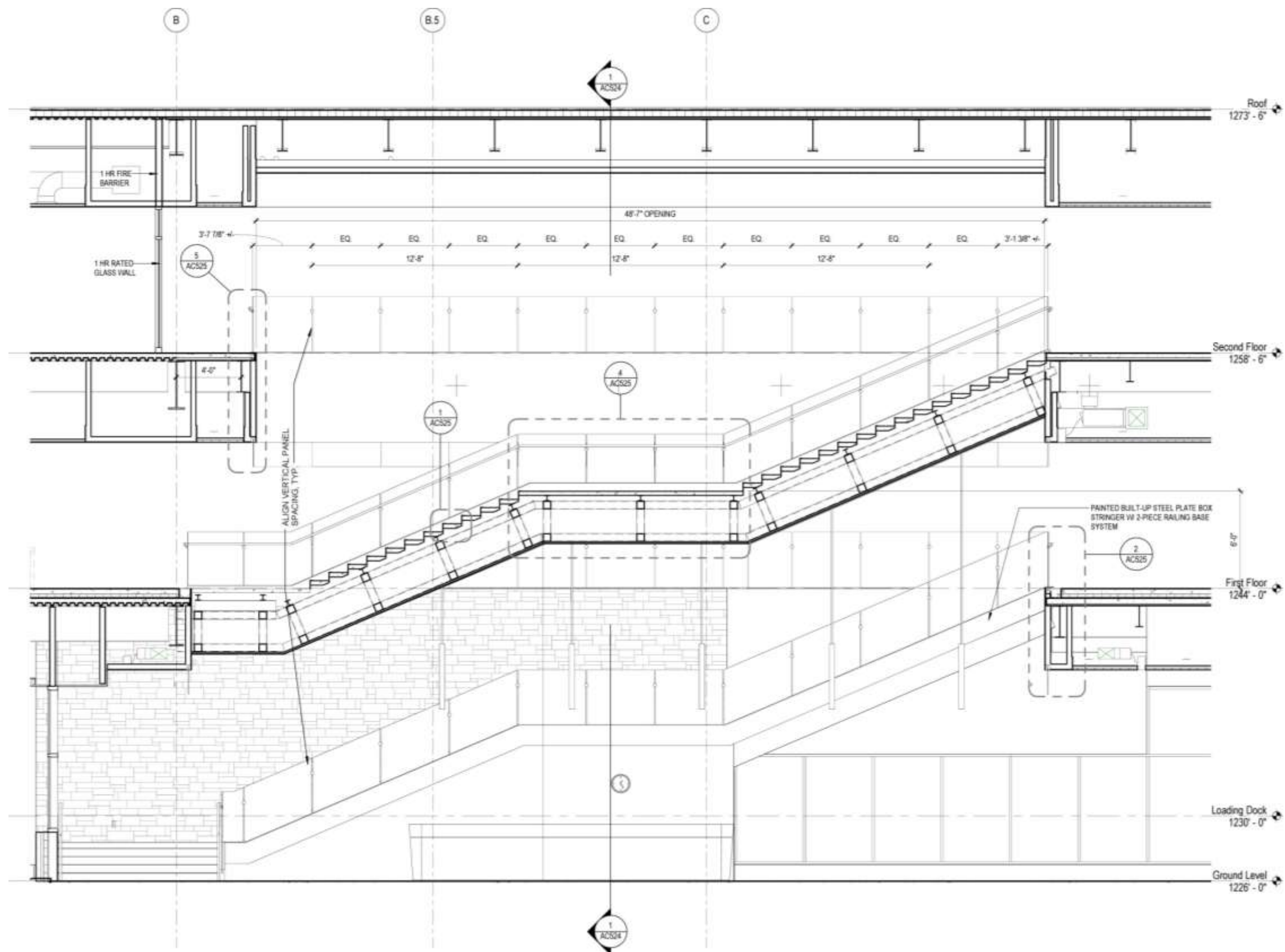
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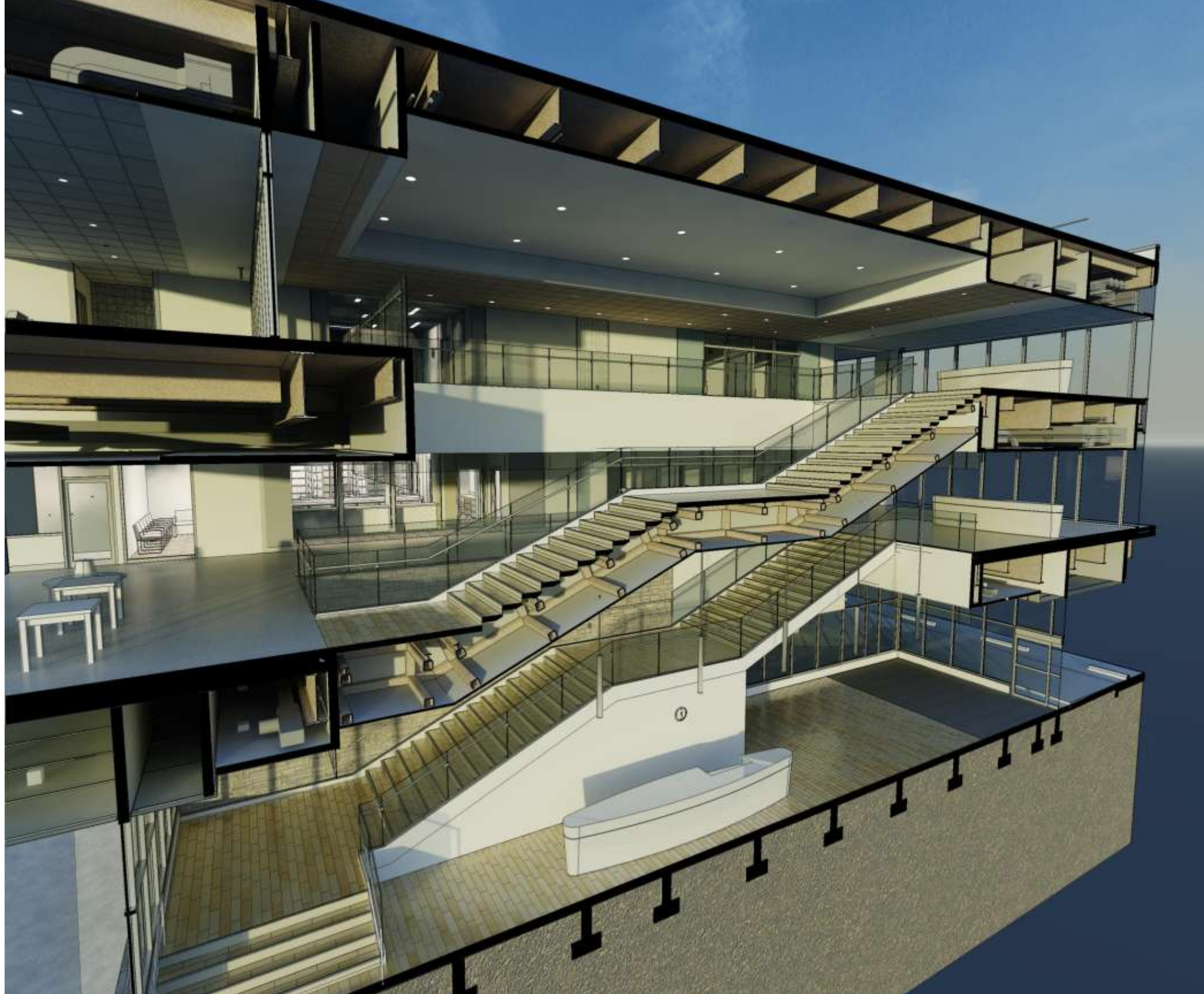


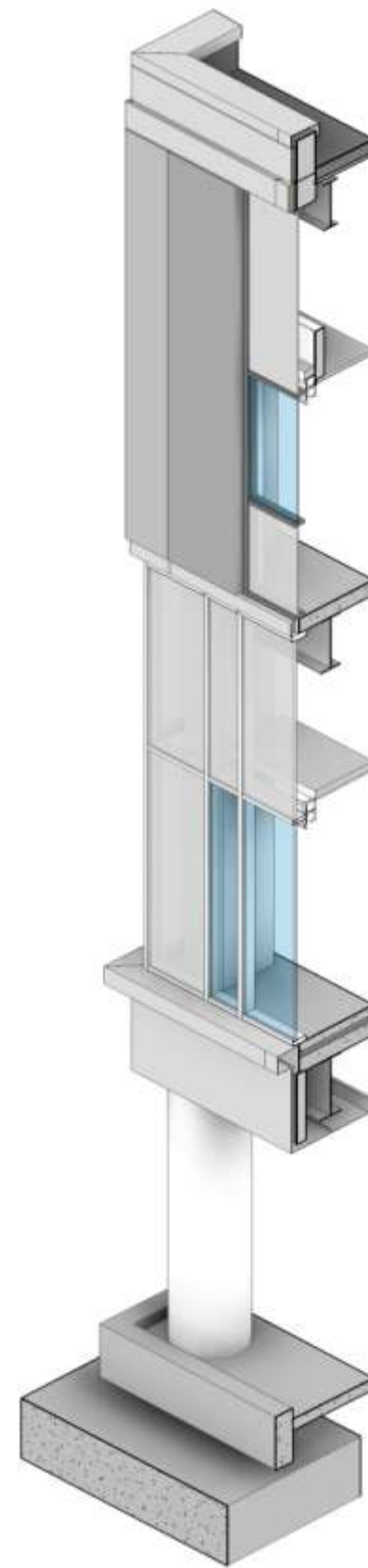
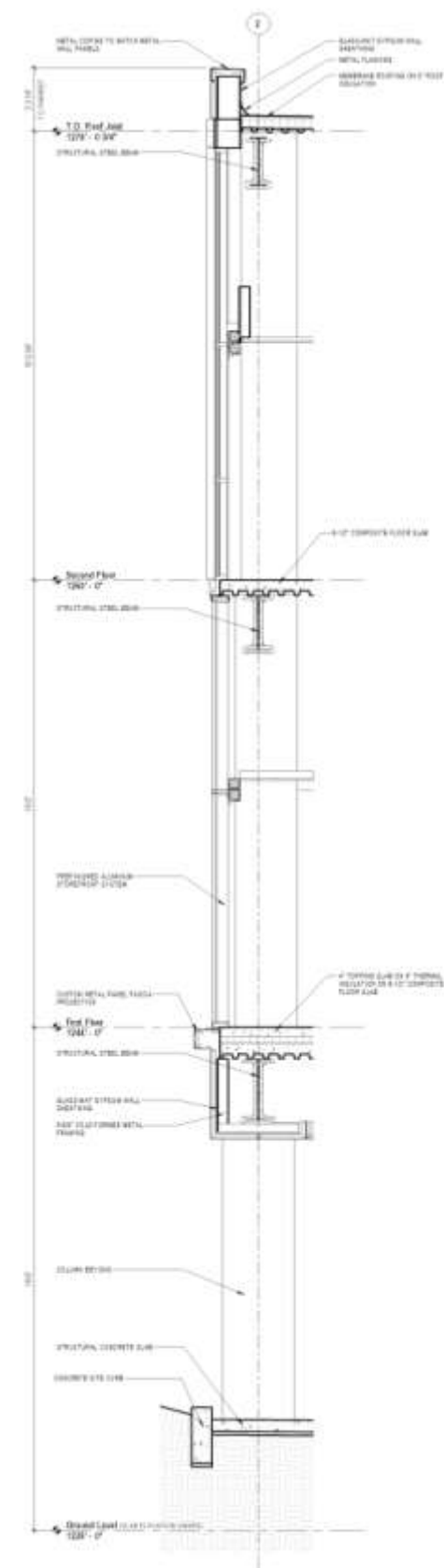
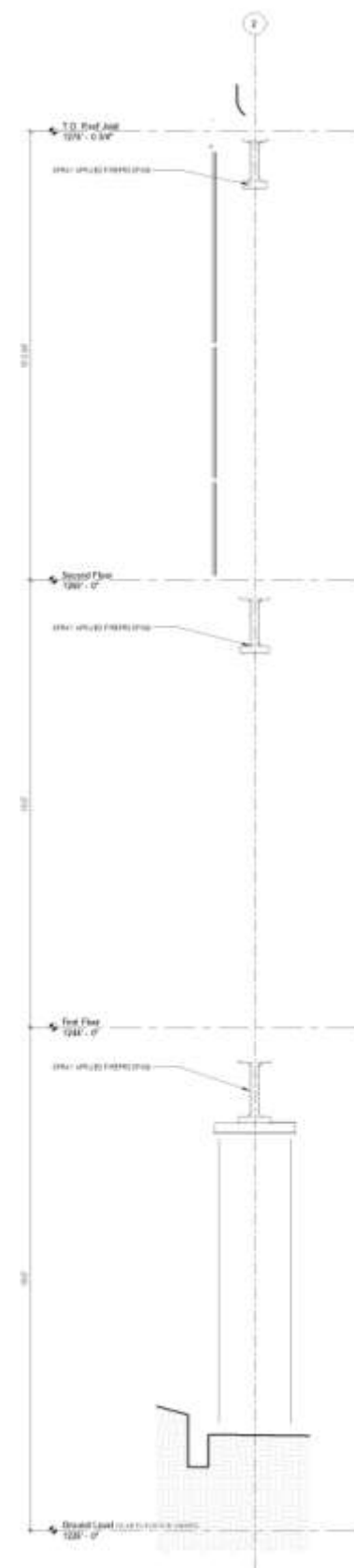
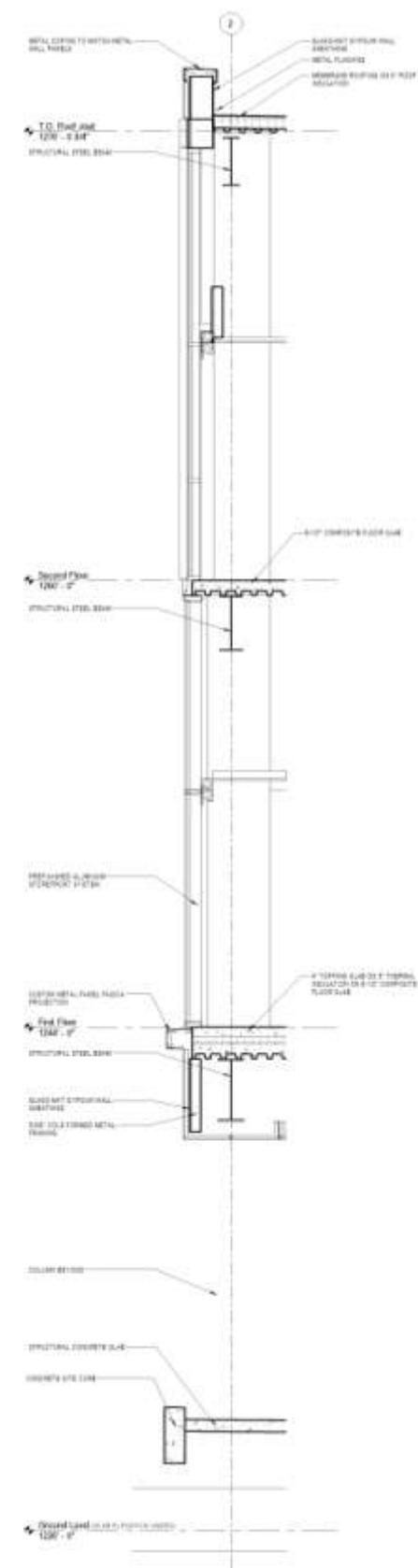
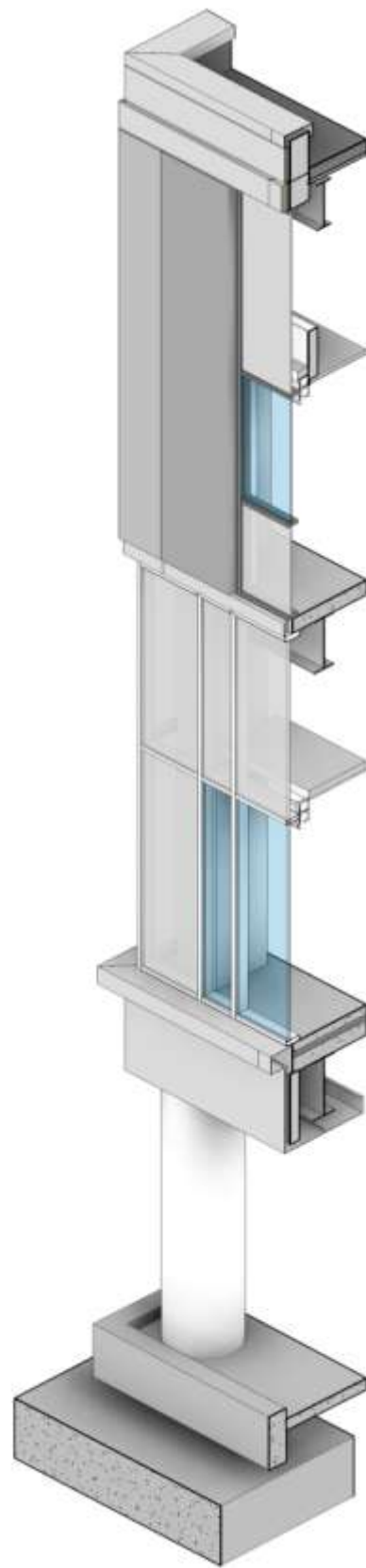














WEXFORD MEDICAL MALL

**ASTORINO**  
Architecture Engineering Interior Design Design/Built

227 Post Pitt Boulevard  
Pittsburgh, PA 15222  
TEL 412 765 1700  
FAX 412 765 1711  
www.astorino.com

WOMEN'S CENTER WAITING

Drawing Title

Drawn By: Author

Ref

Project: 6063004

Scale:

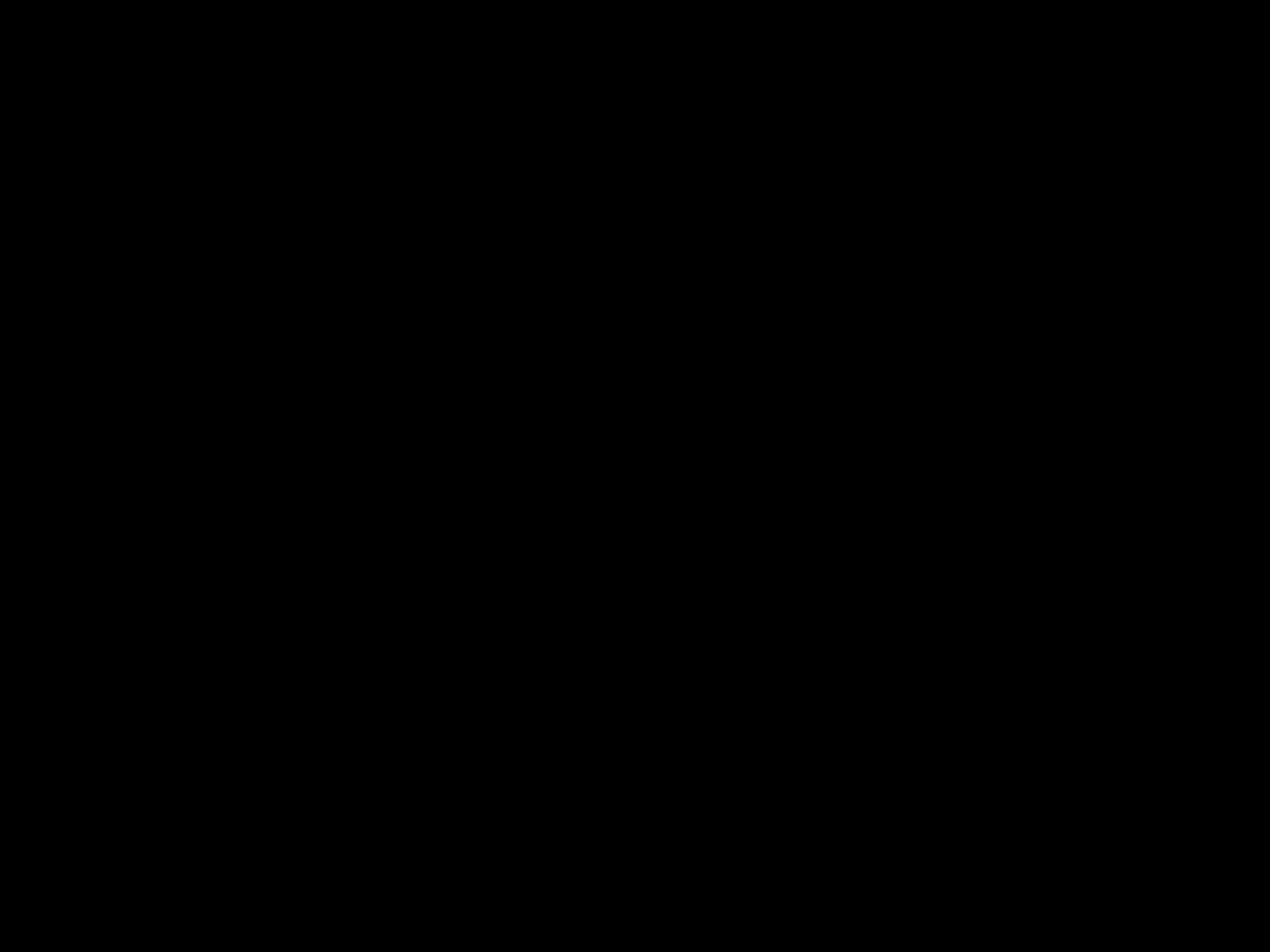
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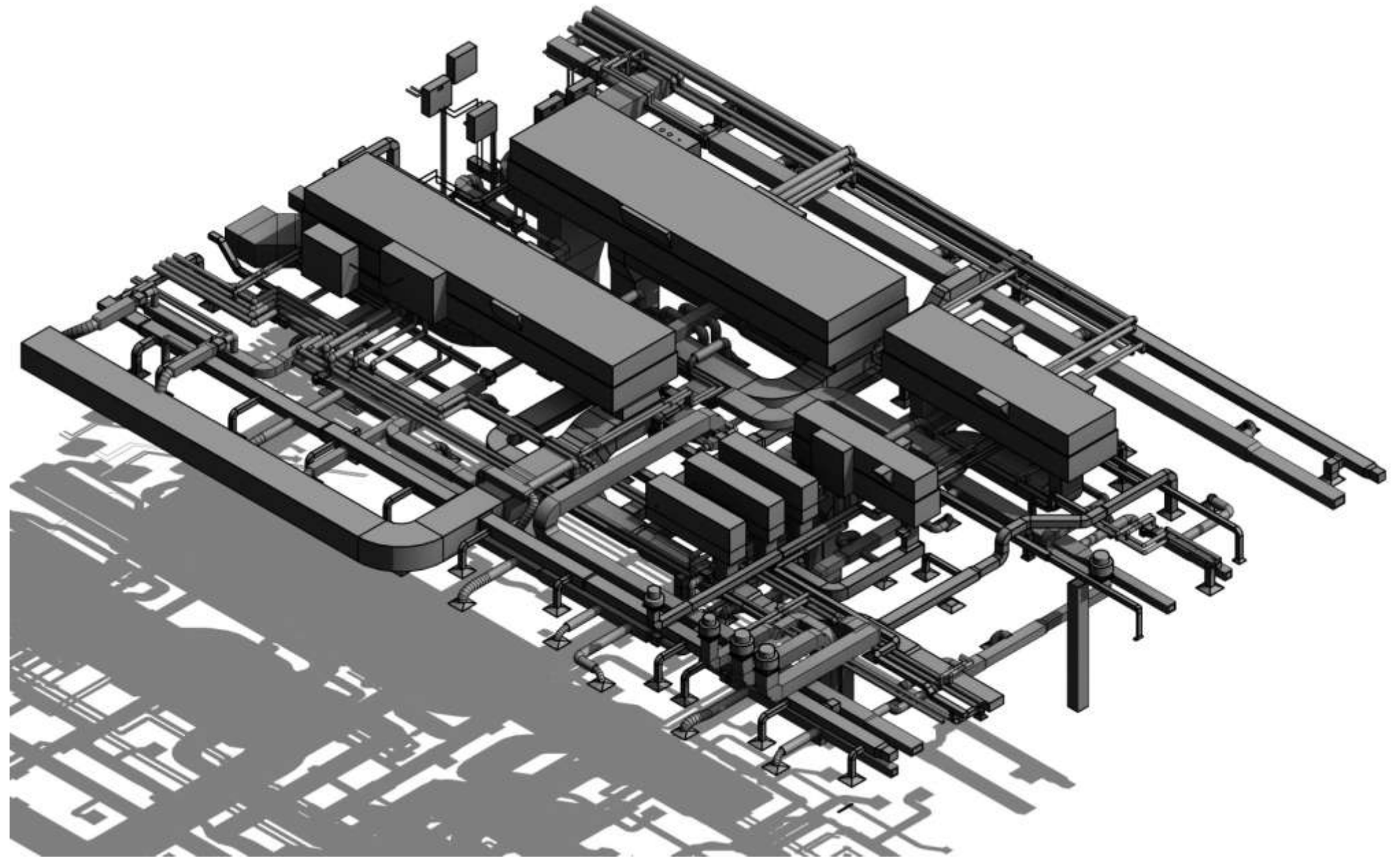
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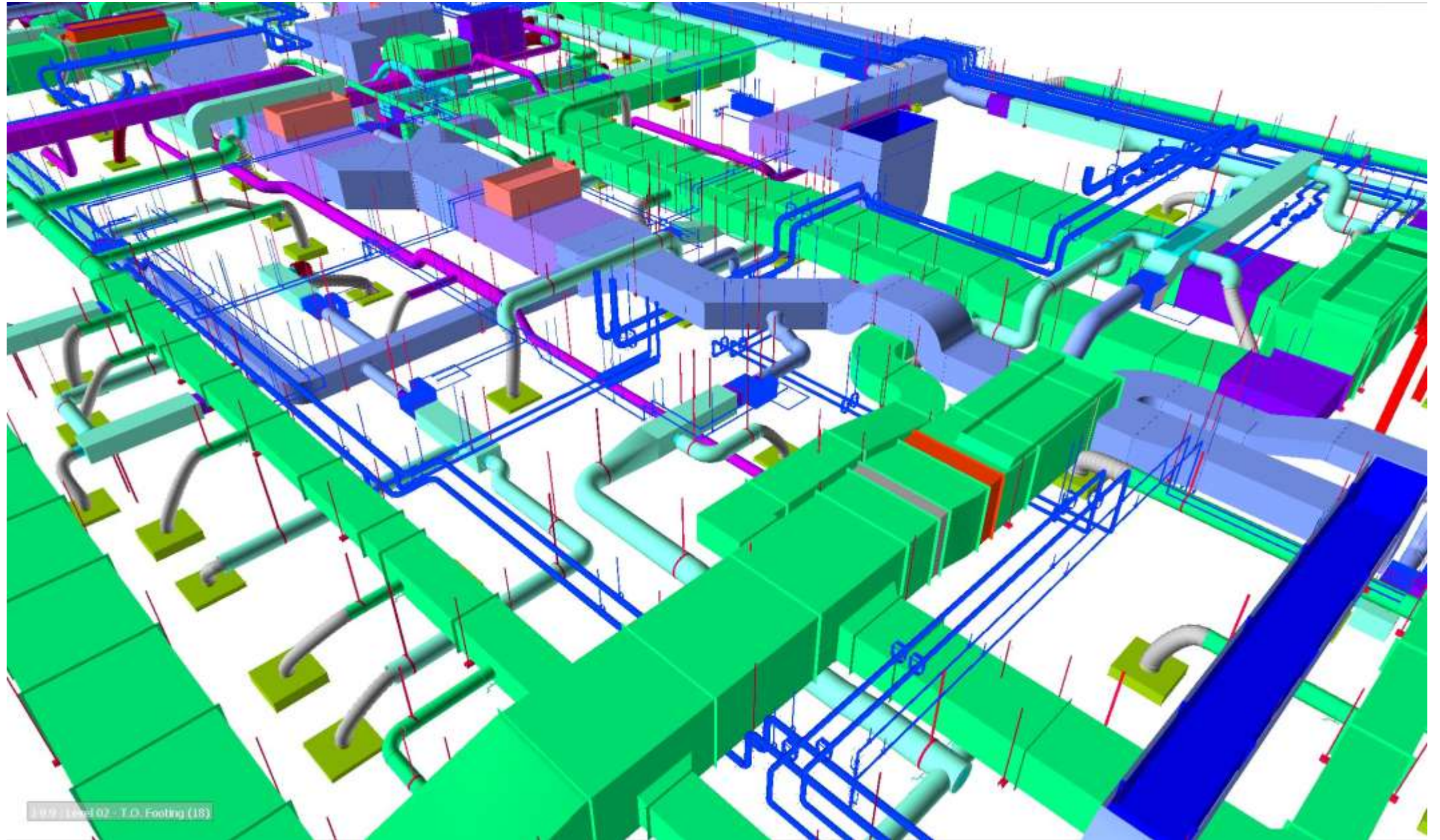




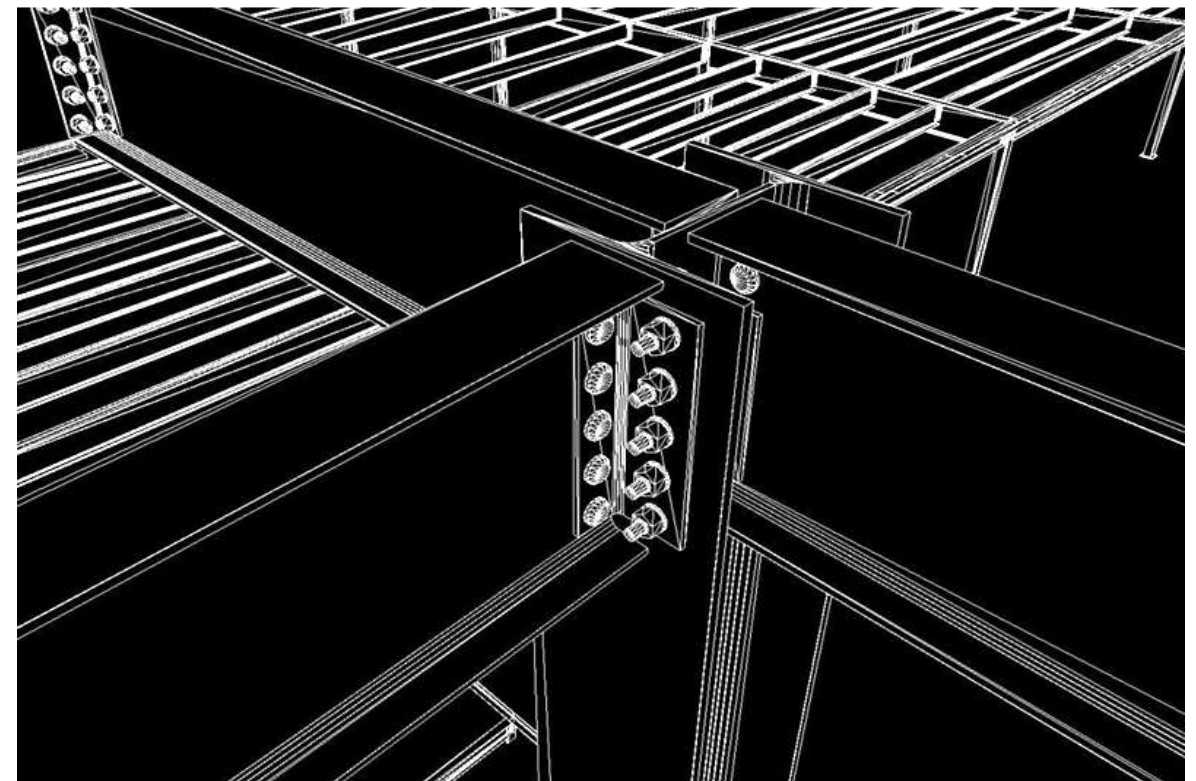
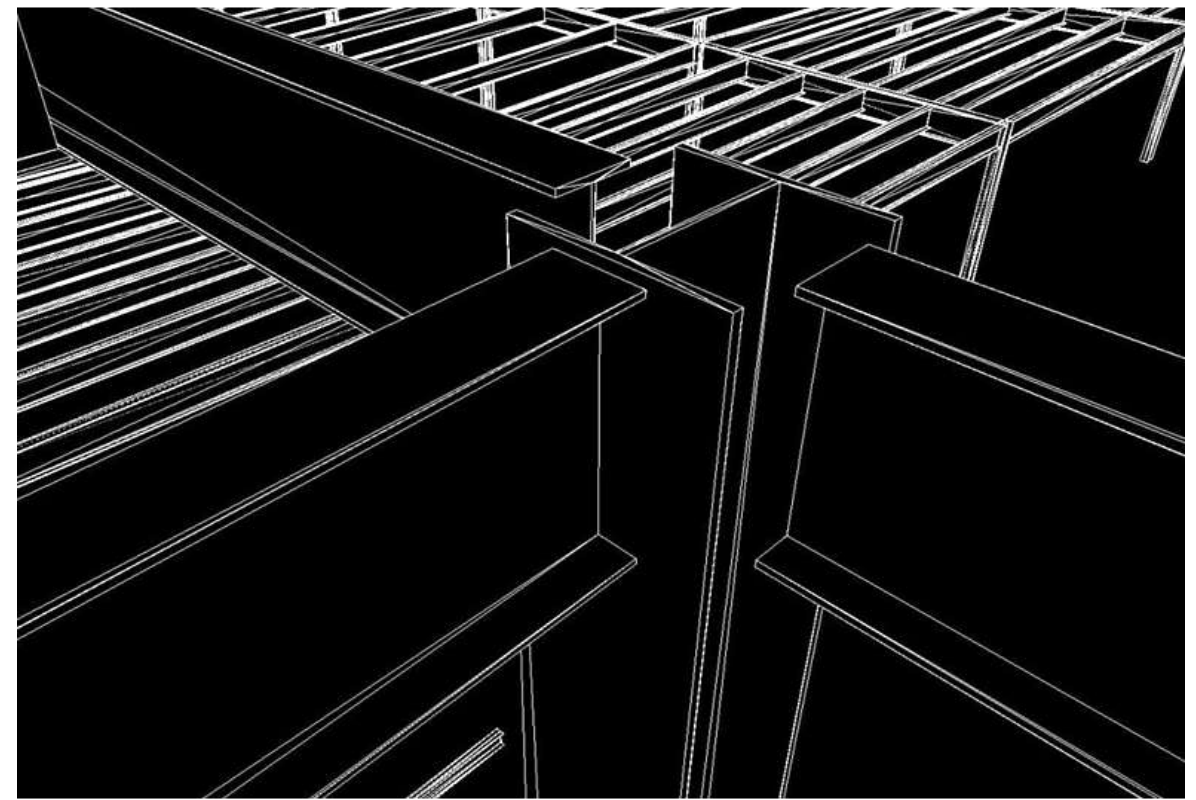
LOD 300



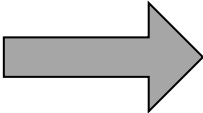
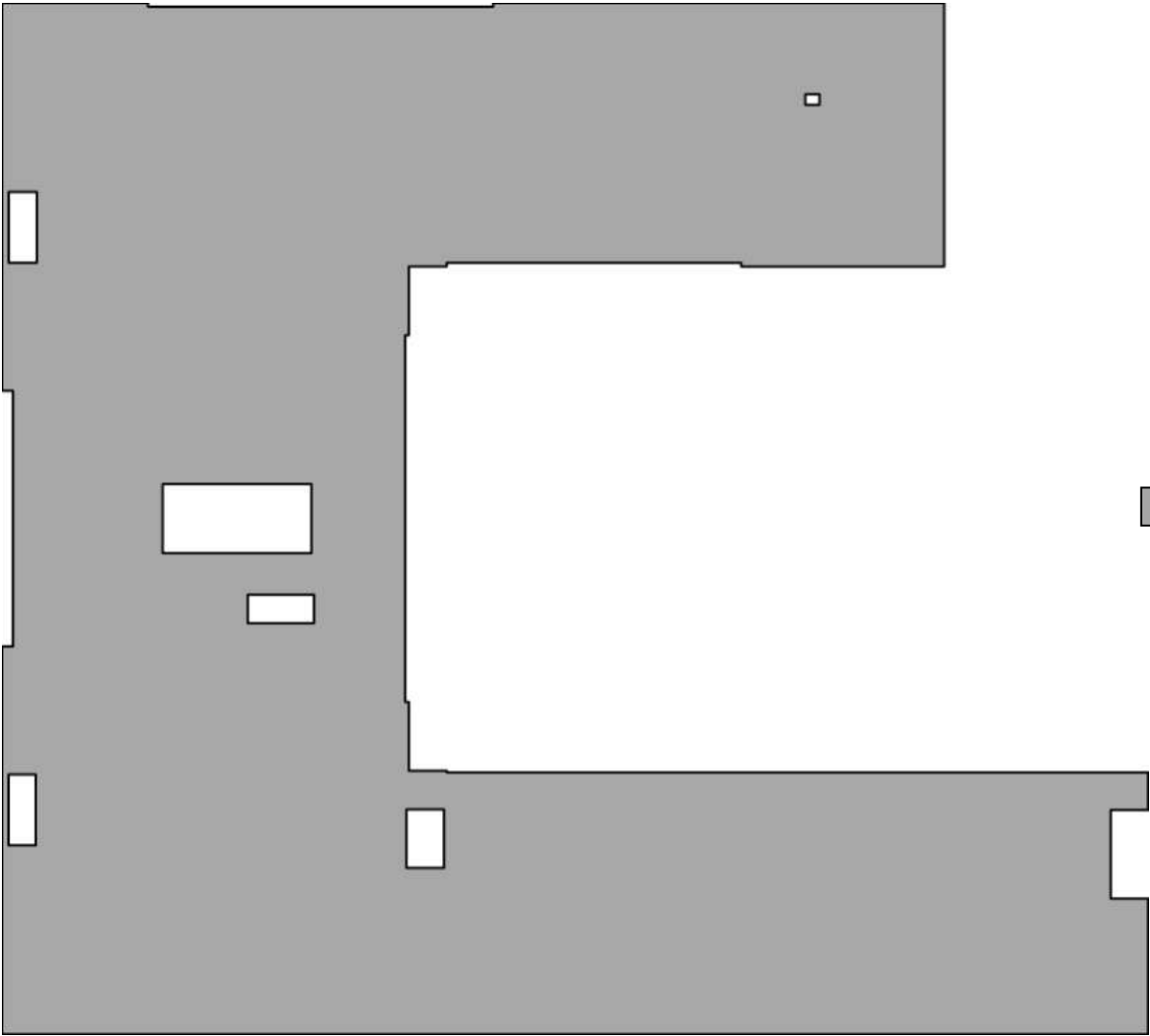
LOD 350



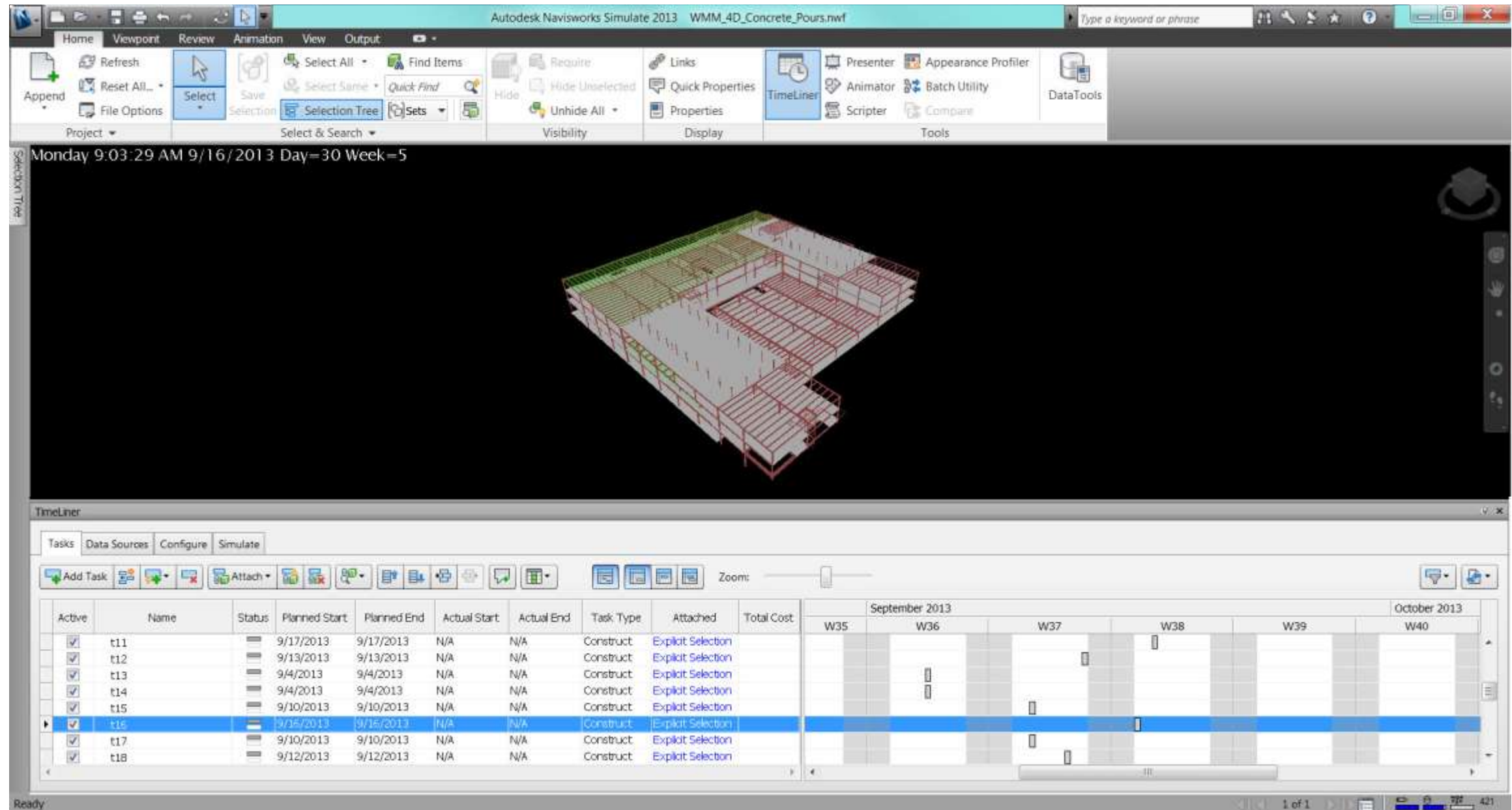
LOD 300 - 350



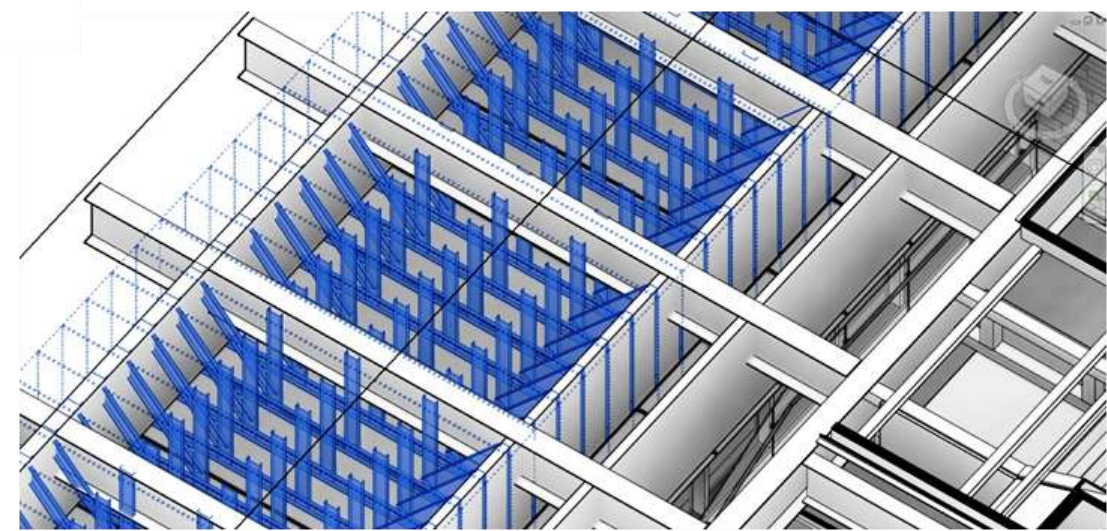
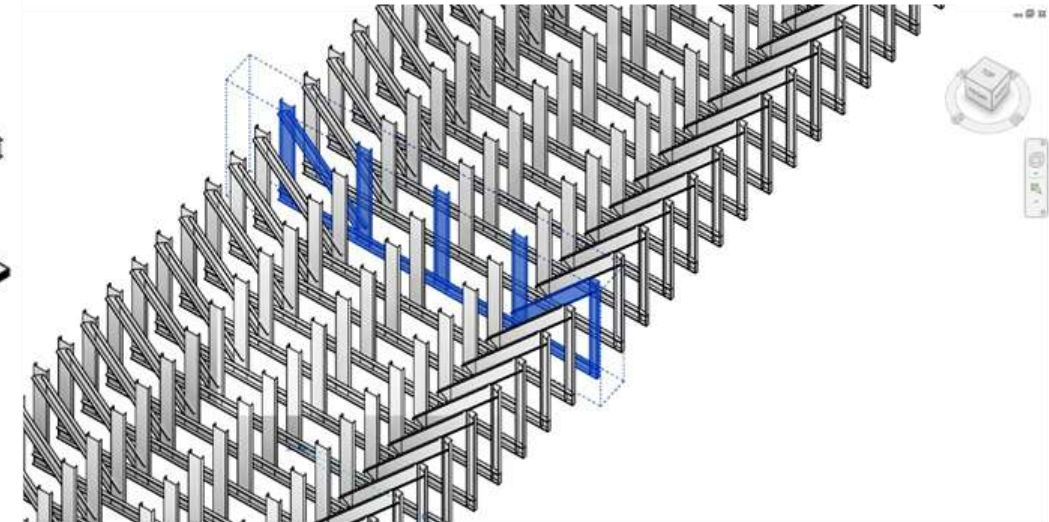
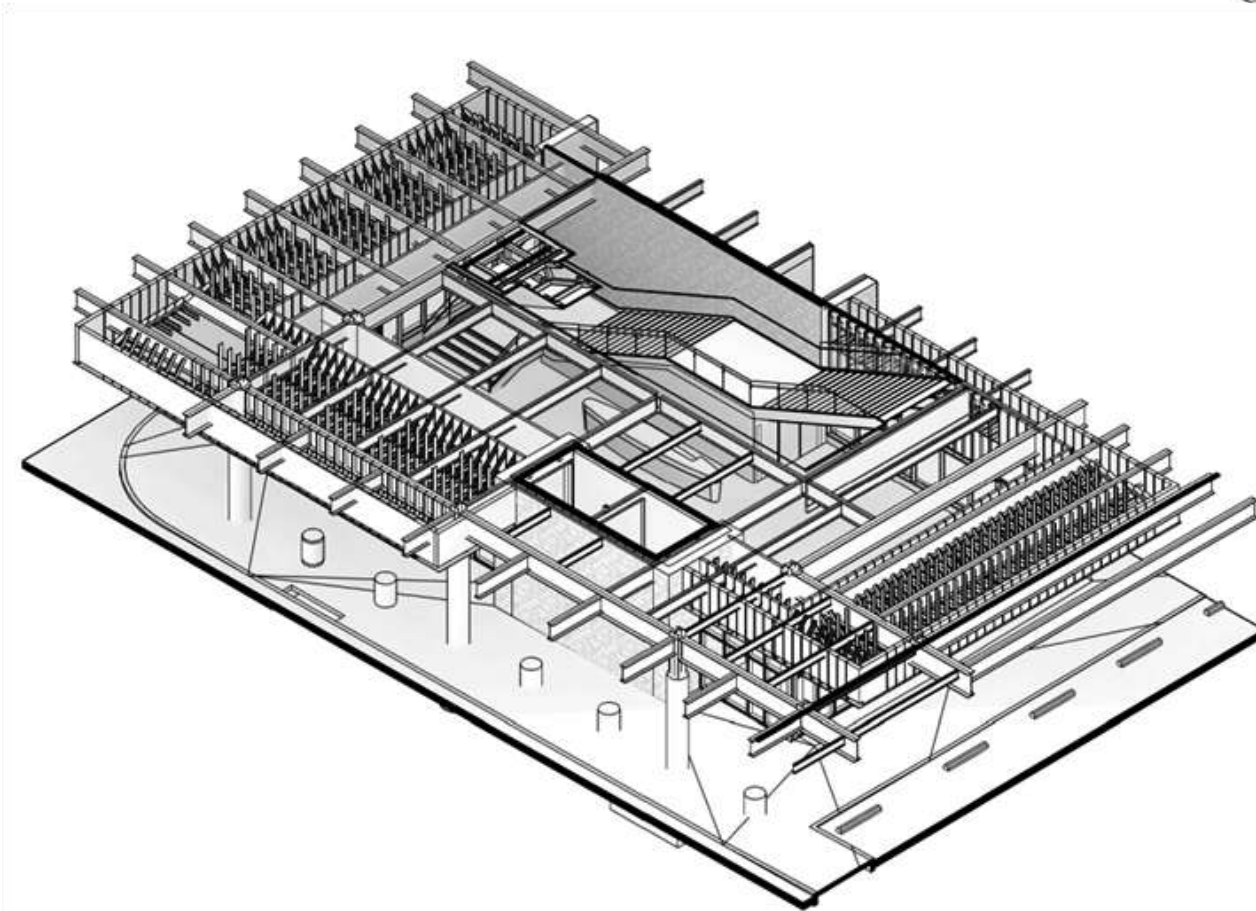
LOD 300 - 350



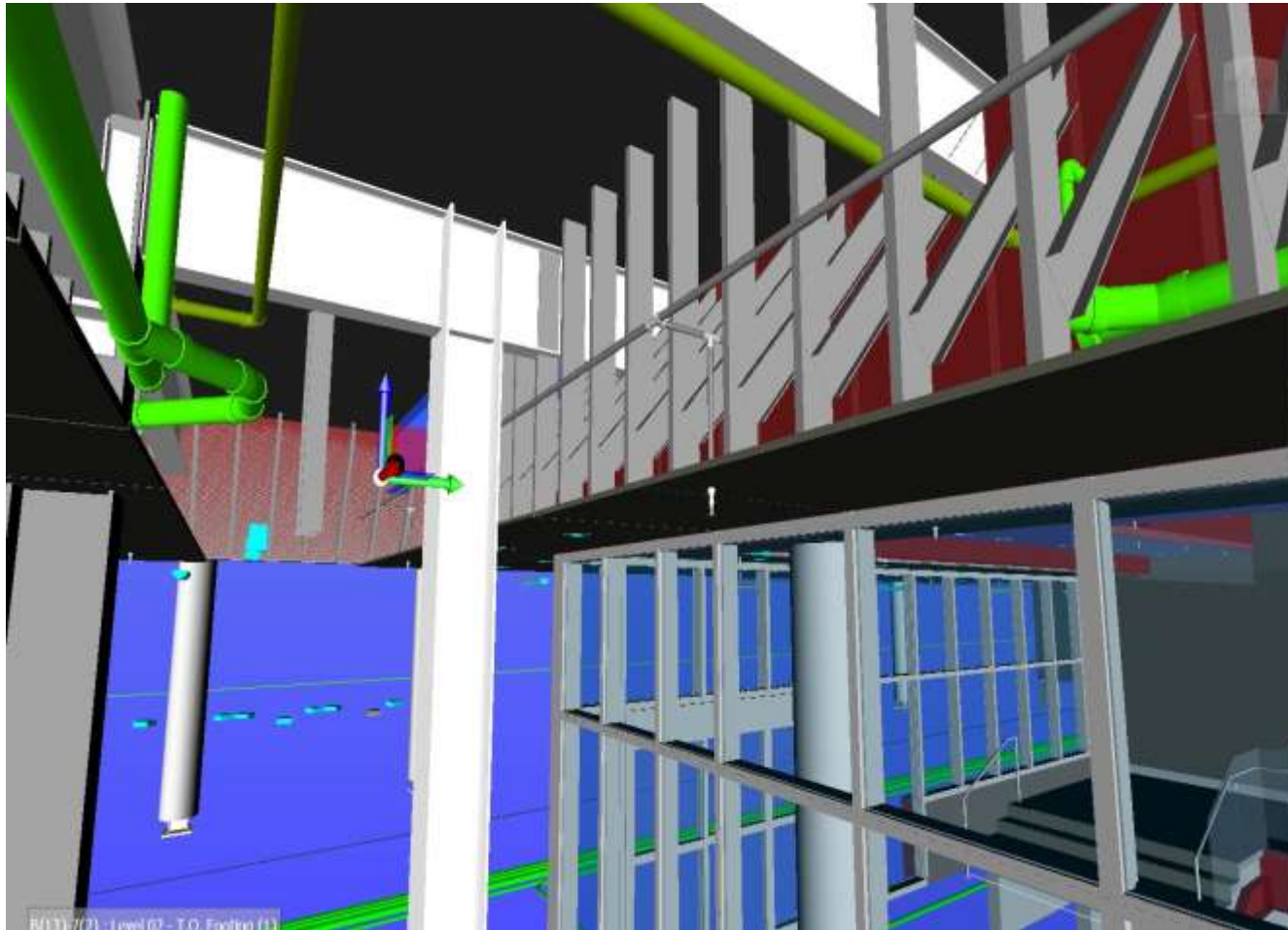
## LOD 300 - 350



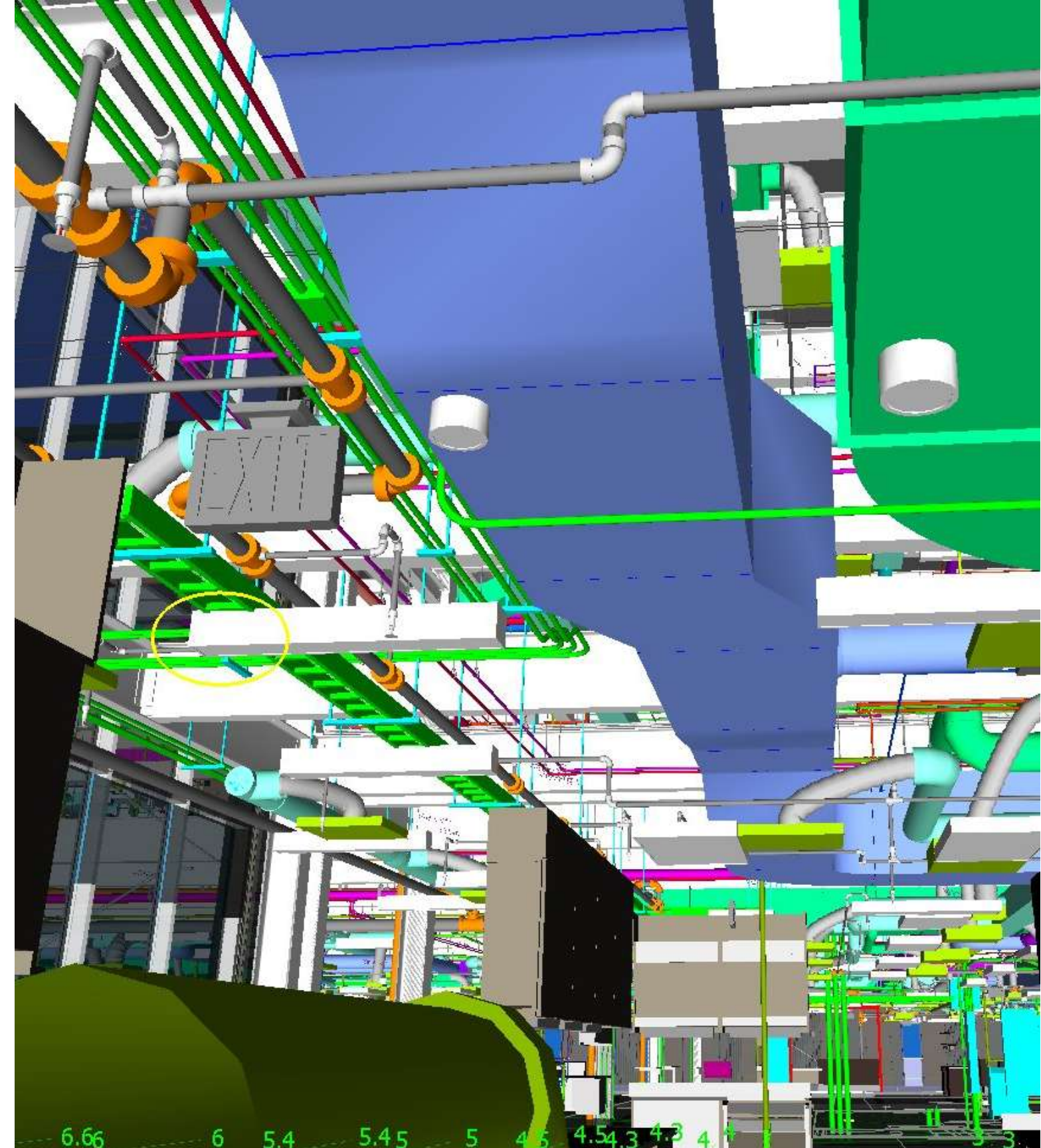
LOD 300 - 350



## LOD 350 Trade Coordination



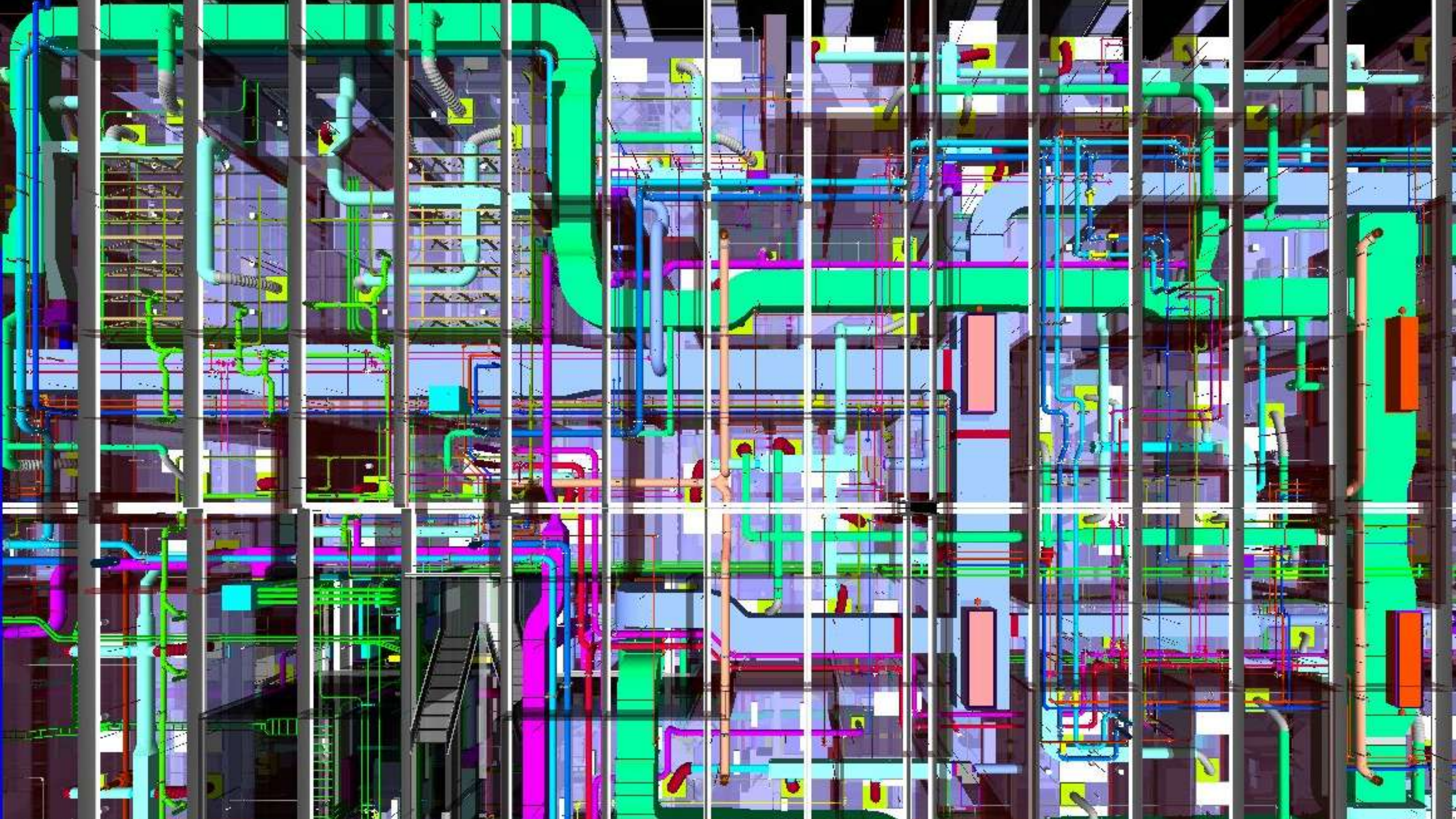
## LOD 350 Trade Coordination



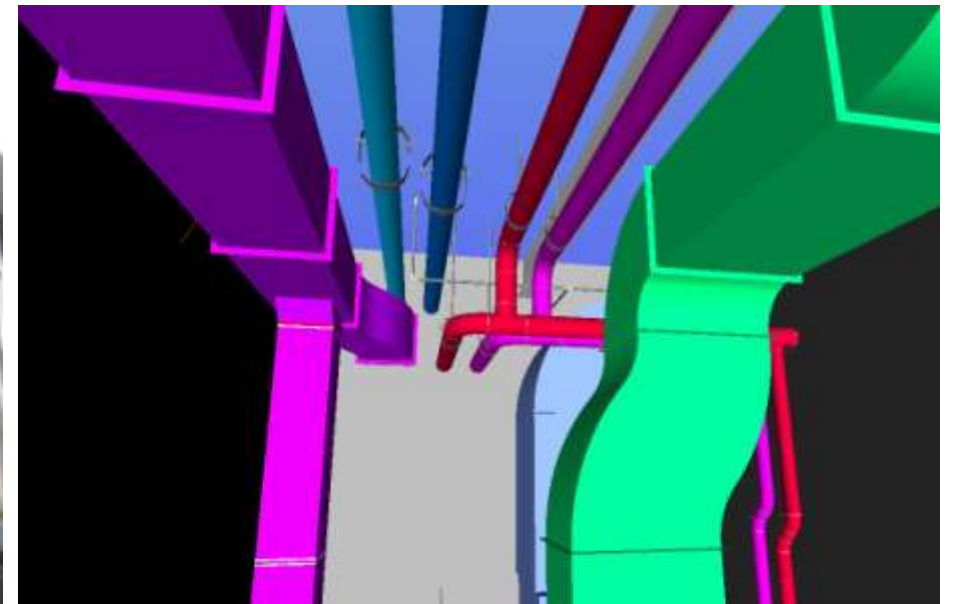
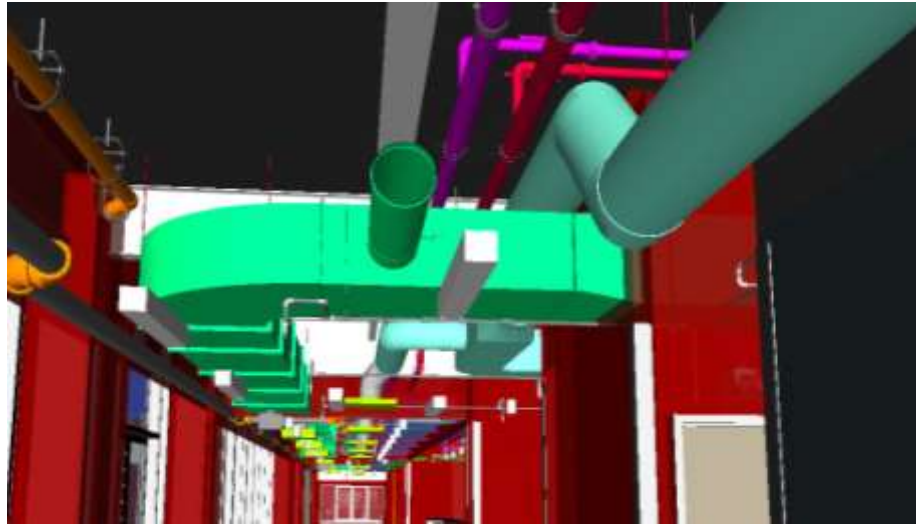
## LOD 350 Trade Coordination



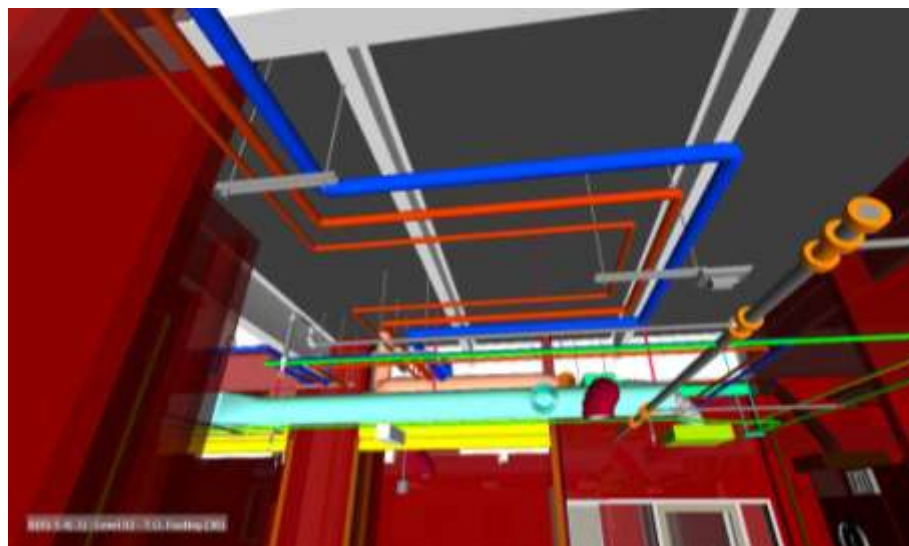
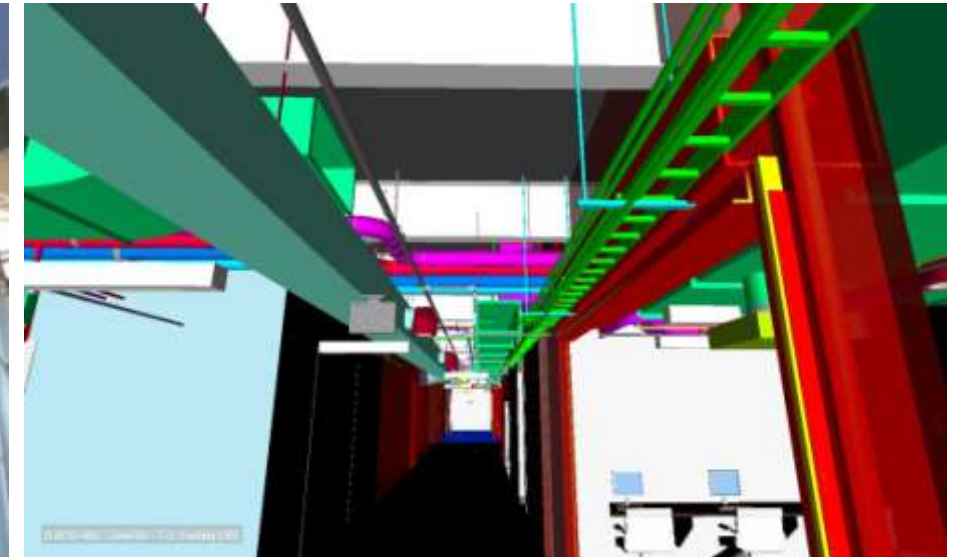
Resolving issues **NOT** creating them



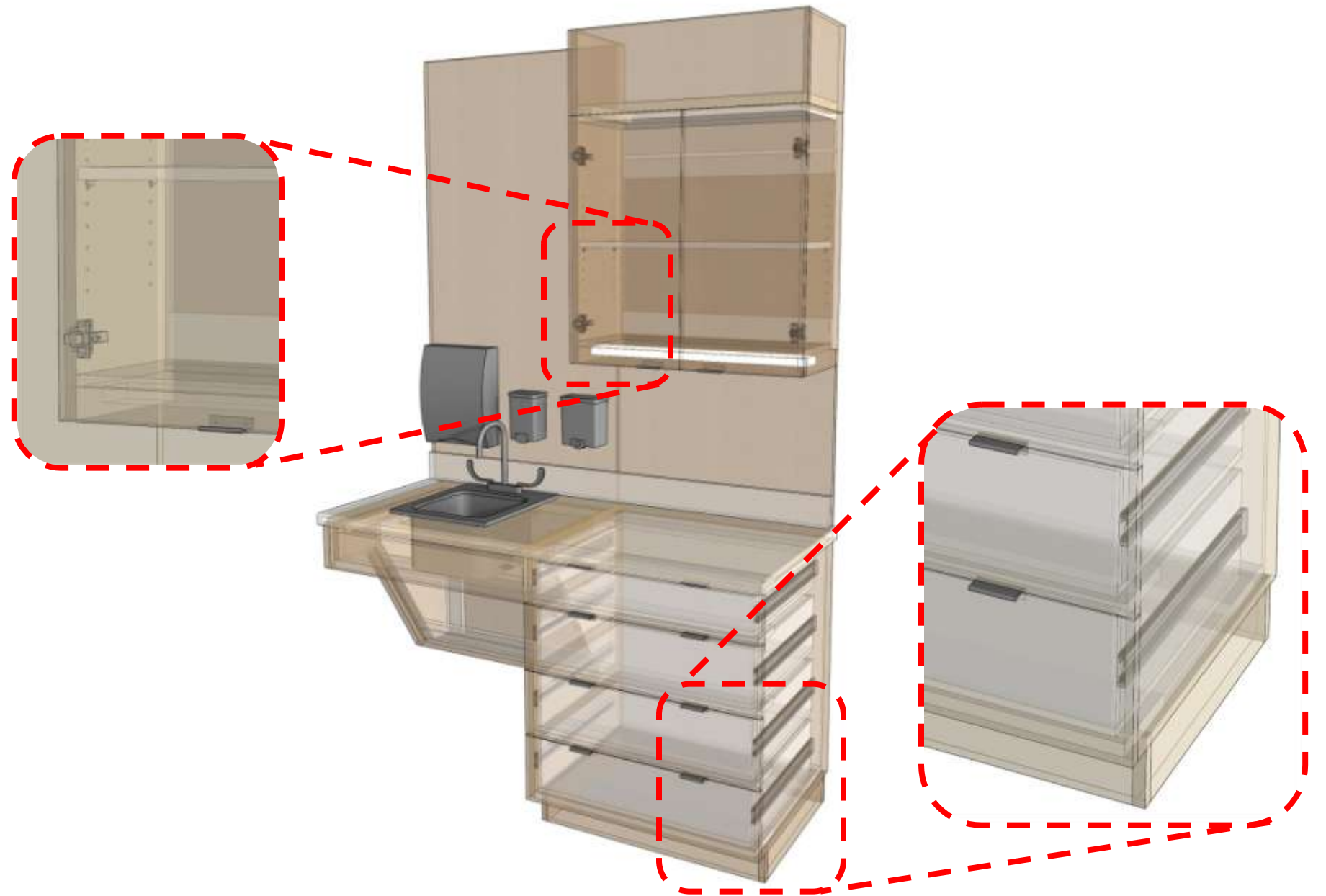
**LOD 350**  
**Trade Coordination**



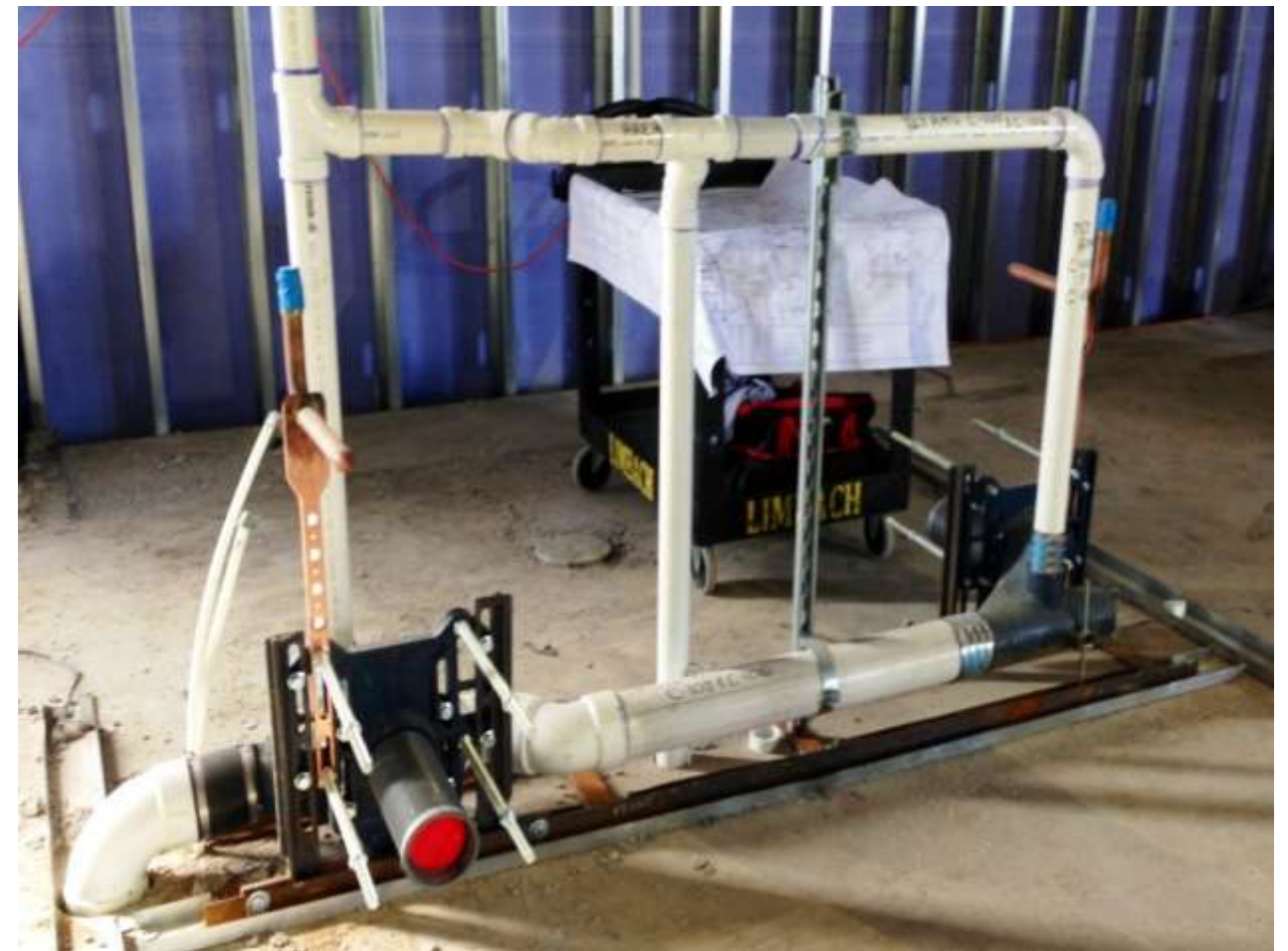
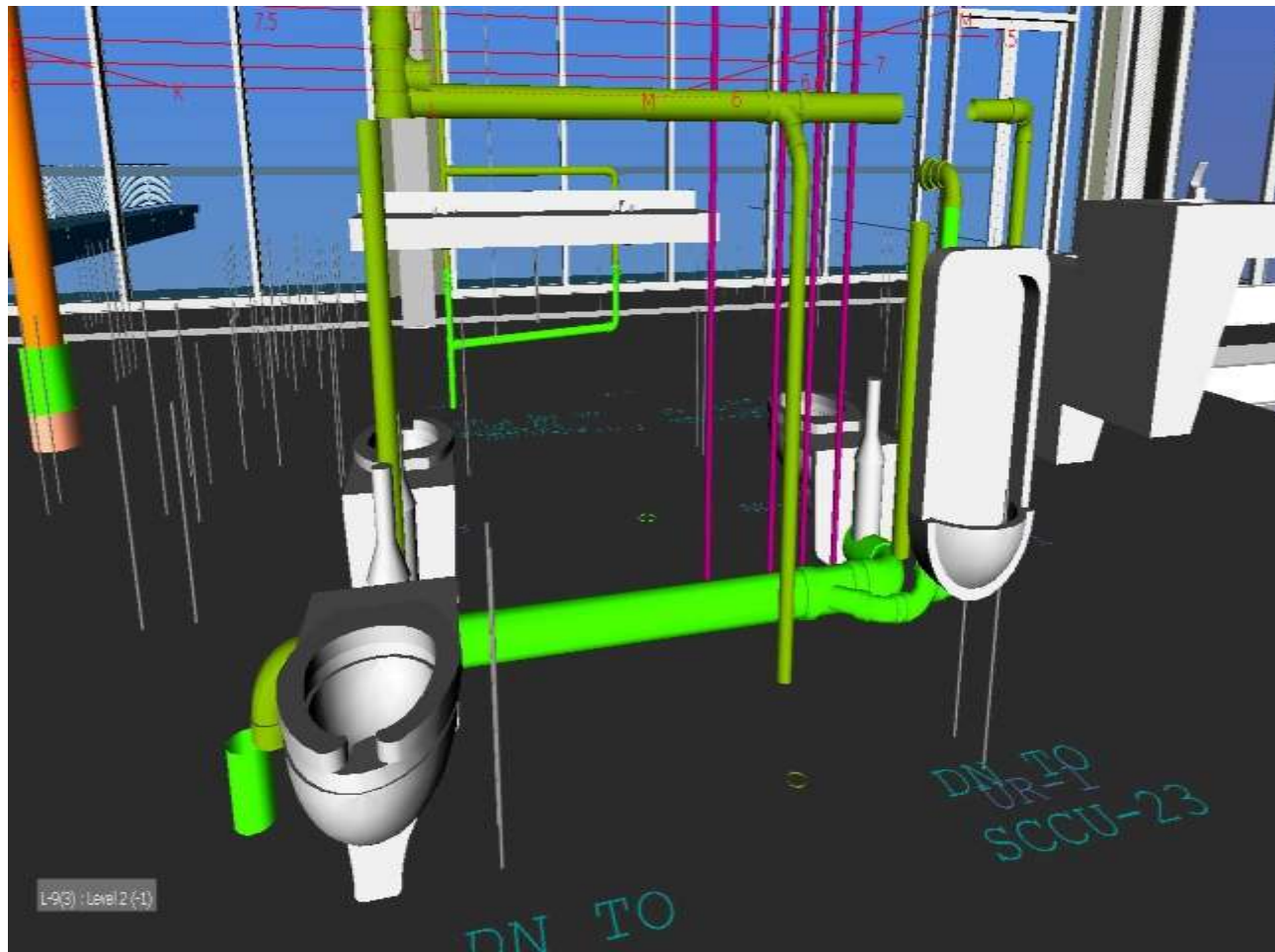
## LOD 350 Trade Coordination



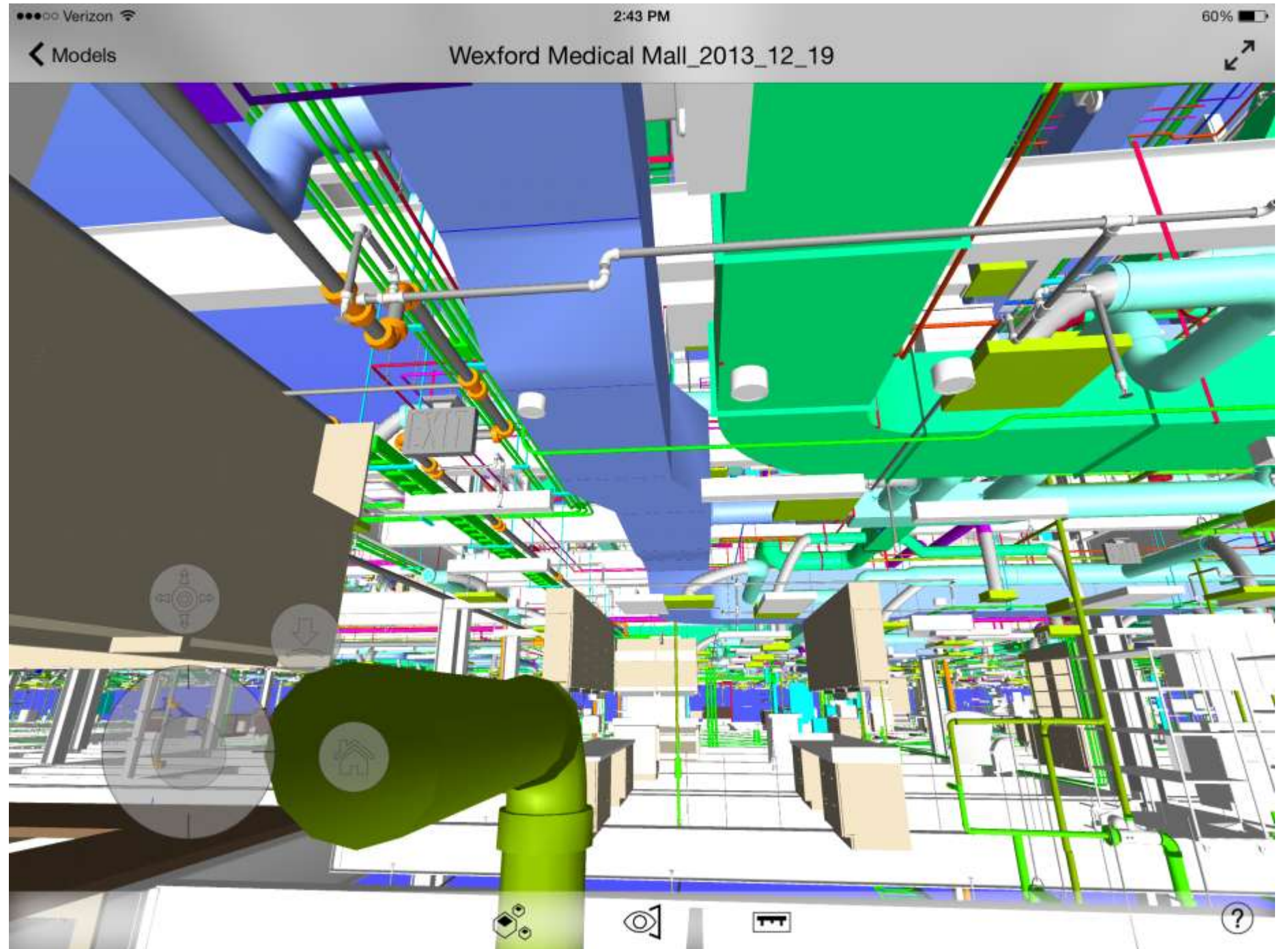
LOD 300 - 400



## LOD 350 > 400 – Trade Coordination > Prefabrication



## BIM 360 Field



## Newforma

Spatial Index

Plans

Punch List App



# Newforma – Spatial Index

6063004.00 - Wexford Medical Mall-Copperleaf Ph 2 - Newforma Project Center

ACTIVITIES Project: 6063004.00 - Wexford Medical Mall-Copperleaf Ph 2

SPATIAL INDEX - WEXFORD MEDICAL MALL-COPPERLEAF PH 2 (6063004.00) Refreshed 14 minutes ago

Manage space and room information

All Spaces (780)

Filter All Columns:

System Type	Number	Name	Space Type	Team Members	Related Items	Related Model	Keywords
	T212	SOILED HOLDING	--			WEXFORD MEDICAL MALL	--
	T213	LAB STORAGE	--			WEXFORD MEDICAL MALL	--
	T214	WORKROOM	--			WEXFORD MEDICAL MALL	--
	T215	RECEPTION	--			WEXFORD MEDICAL MALL	--
	T216	CORRIDOR	--			WEXFORD MEDICAL MALL	--
	T217	WAITING	--			WEXFORD MEDICAL MALL	--
	T218	CORRIDOR	--			WEXFORD MEDICAL MALL	--
	T219	RADIOGRAPHY STORAGE	--			WEXFORD MEDICAL MALL	--
	T220	CORRIDOR	--			WEXFORD MEDICAL MALL	--
	T221	CORRIDOR	--			WEXFORD MEDICAL MALL	--
	T222	DRESSING	--			WEXFORD MEDICAL MALL	--
	T223	DRESSING	--			WEXFORD MEDICAL MALL	--
	T224	CORRIDOR	--			WEXFORD MEDICAL MALL	--
	U201	LAB	--			WEXFORD MEDICAL MALL	--
	U202	HANDWASH	--			WEXFORD MEDICAL MALL	--
	U203	PROCESSING	--			WEXFORD MEDICAL MALL	--
	U204	PATIENT TOILET	--			WEXFORD MEDICAL MALL	--
	U205	BLOOD DRAW	--			WEXFORD MEDICAL MALL	--
	U206	PRIVATE BLOOD DRAW	--			WEXFORD MEDICAL MALL	--
	U207	PRIVATE BLOOD DRAW	--			WEXFORD MEDICAL MALL	--
	U208	OFFICE	--			WEXFORD MEDICAL MALL	--
	U209	SOILED HOLDING	--			WEXFORD MEDICAL MALL	--

780 Spaces in 'All Spaces'

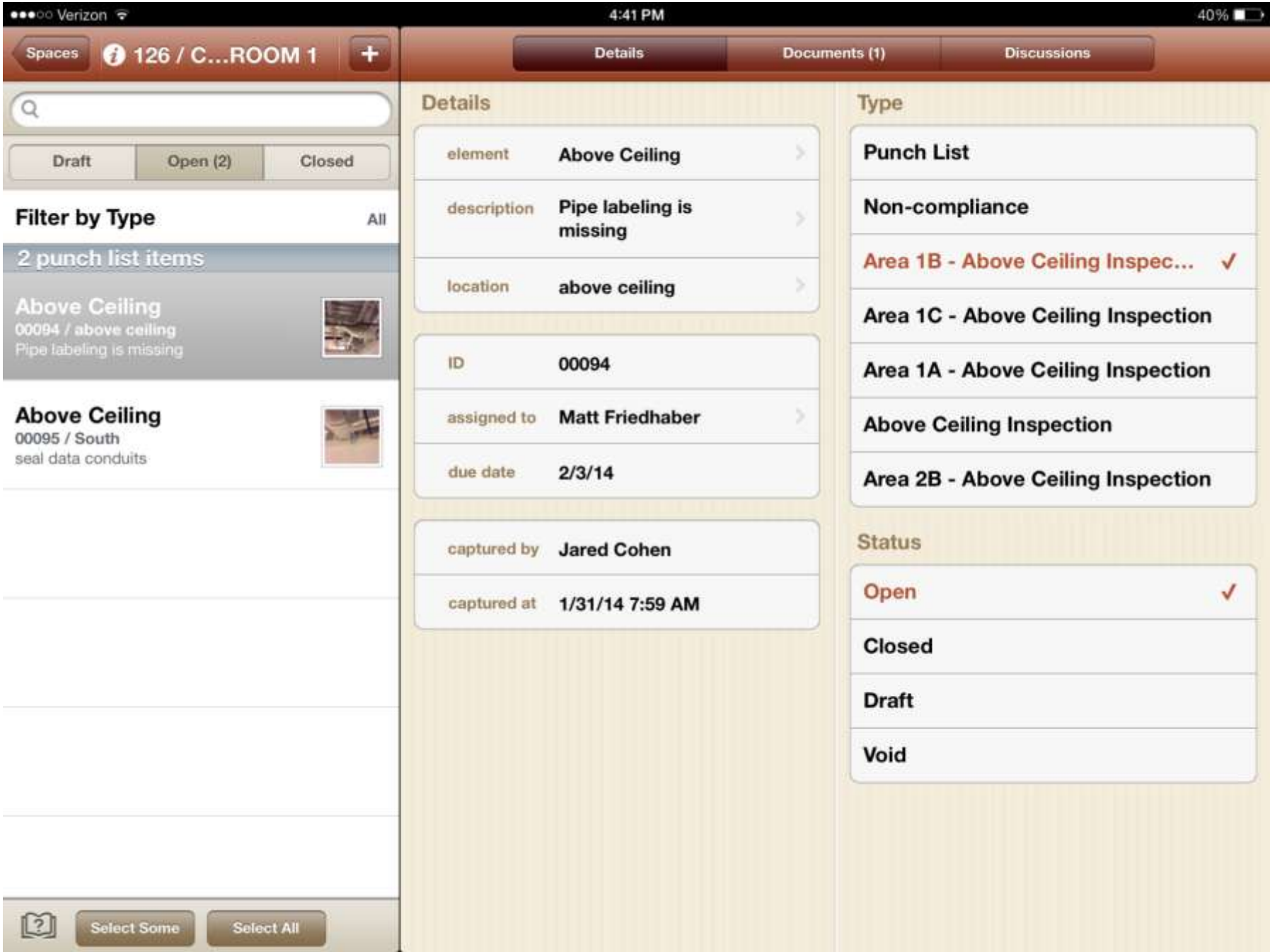
DESCRIPTION EMAIL LOG (0) SUPPORTING DOCUMENTS (0) RELATED ITEMS (7) CHANGE LOG

Subject	Type	Workflow	Team Members	Date	Keywords	Relation Type
WEXFORD MEDICAL MALL	Building Model	--	Brian Skripac	1/30/2014	--	Related Building Model
Above Ceiling - seal data conduit	Punch List Item	Closed	Jared Cohen, Mark Shaw	2/18/2014	--	Related Punch List Item
Above Ceiling - roof leak	Punch List Item	Closed	Jared Cohen, Mark Hartman	2/18/2014	--	Related Punch List Item
Roof Leak	Field Note	--	Brandon Rupert	2/18/2014	--	Used by
Above Ceiling - seal cable tray	Punch List Item	Open	Jared Cohen, Mark Shaw	2/18/2014	--	Related Punch List Item
Above Ceiling - duct and pipe labels missing	Punch List Item	Open	Jared Cohen, Matt Friedhaber	2/18/2014	--	Related Punch List Item
Above Ceiling - acoustic seal at duct	Punch List Item	Open	Jared Cohen, Matt Friedhaber	2/18/2014	--	Related Punch List Item

Newforma PROJECT CENTER

Connected to SLDA0018

Newforma  
Punch List App



LESSONS LEARNED