



# Train Station

Jesus and Patrick

BIM Management - Revit

Supervisor: Dr. Zaki Mallasi, Spring 2023

## Project Introduction

Our proposed project approach for the final project will include visualization and design & construction conflicts coordination. 27,500 square foot Train Station Project We will utilize the following platforms to help execute our approach :

- Navisworks
- Microsoft Project
- Microsoft Excel
- Revit

## Methodology

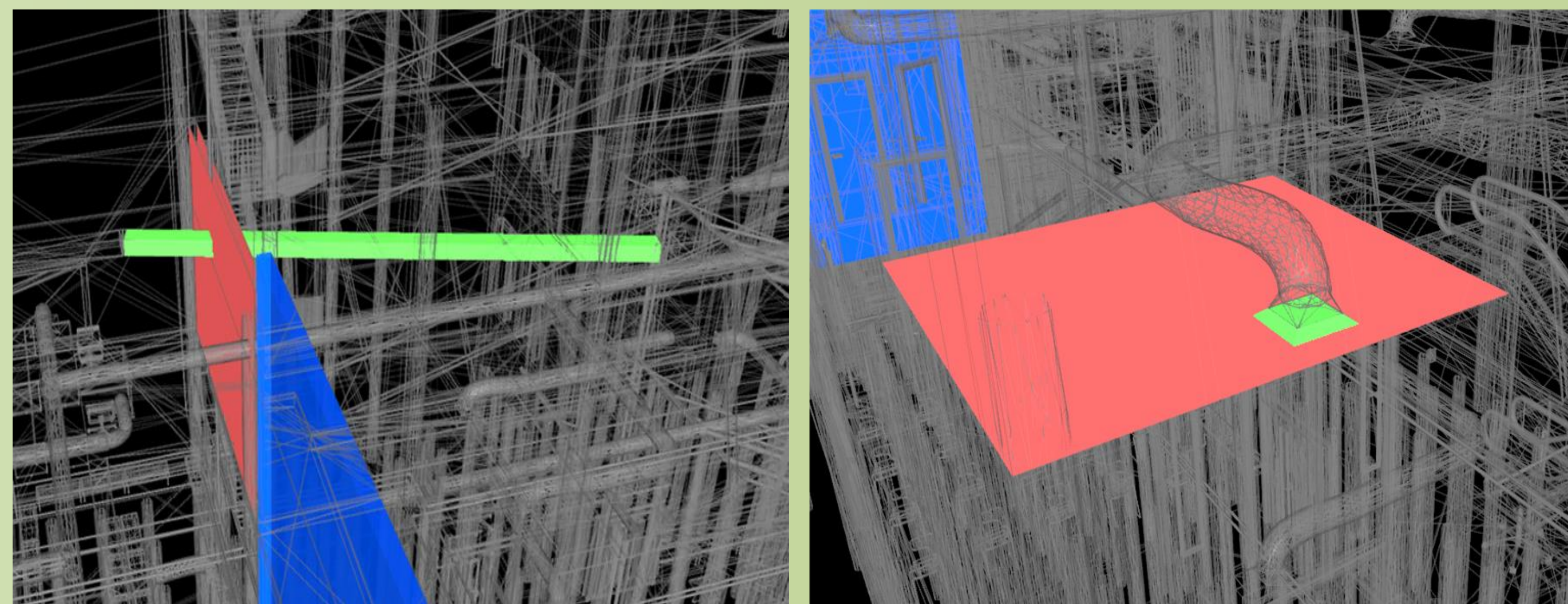
Our approach allows us to effectively showcase specific BIM related strategies and how they are beneficial to the project at hand.

- Clash Detection
- Scheduling
- 4D Phasing
- Estimating using Naviswork and excel

## Objectives

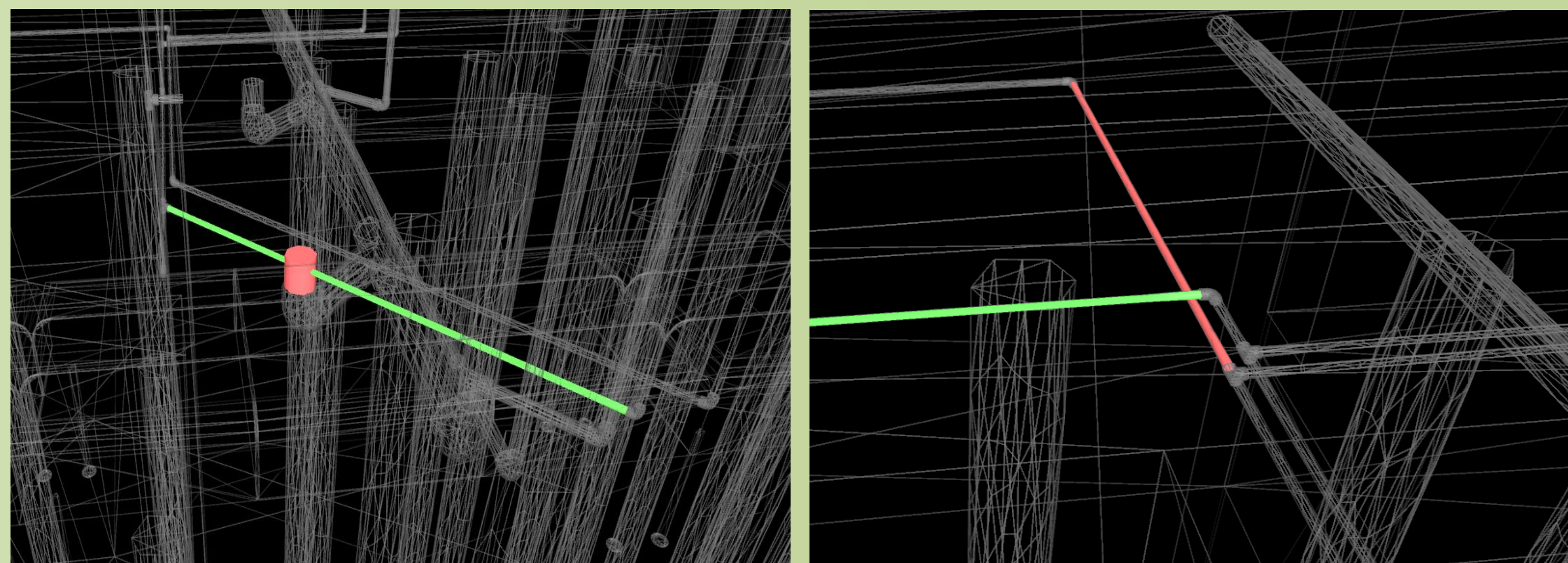
1. Import and combine architectural, structural, and MEP Navisworks models into a single, integrated model.
2. Create selection sets of the various building components
3. Run clash detection between the above-referenced models to identify and note clashes between the various systems and components

## Clash Detection



Clash between wall and HVAC

Clash between Ceiling and HVAC



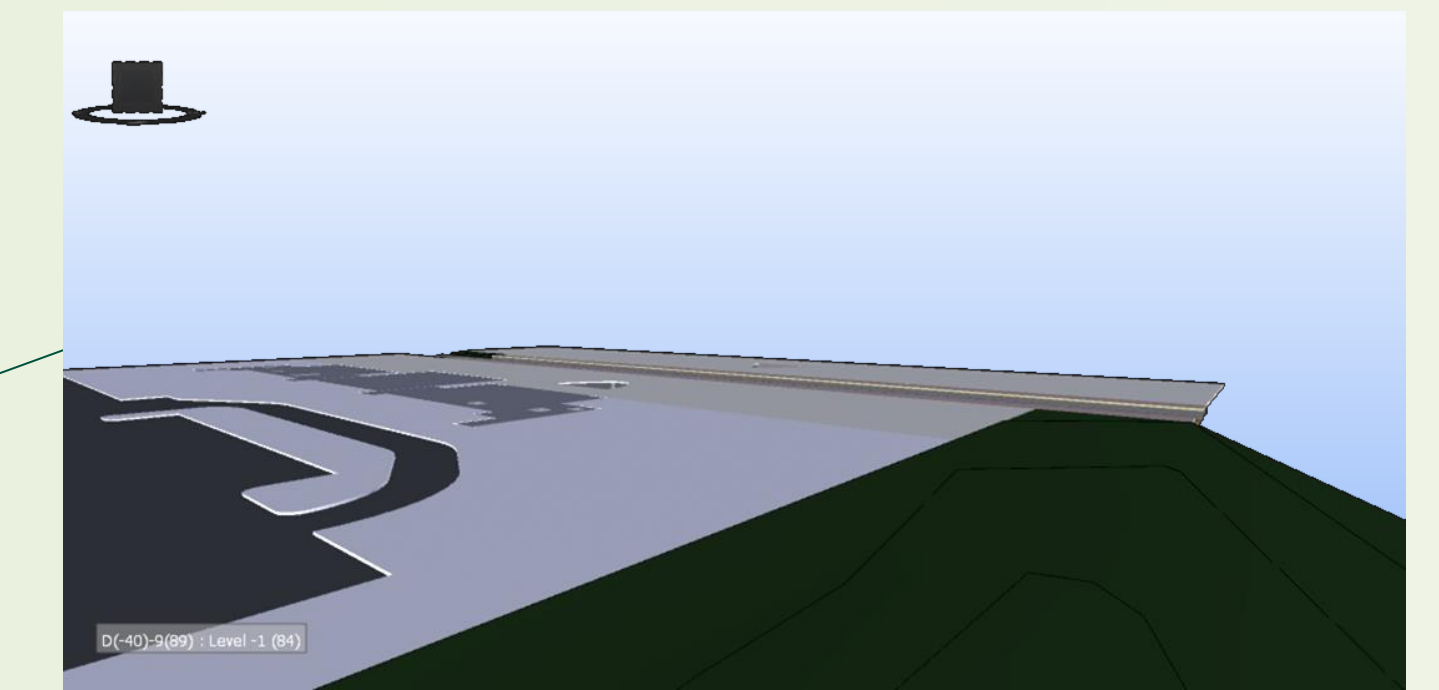
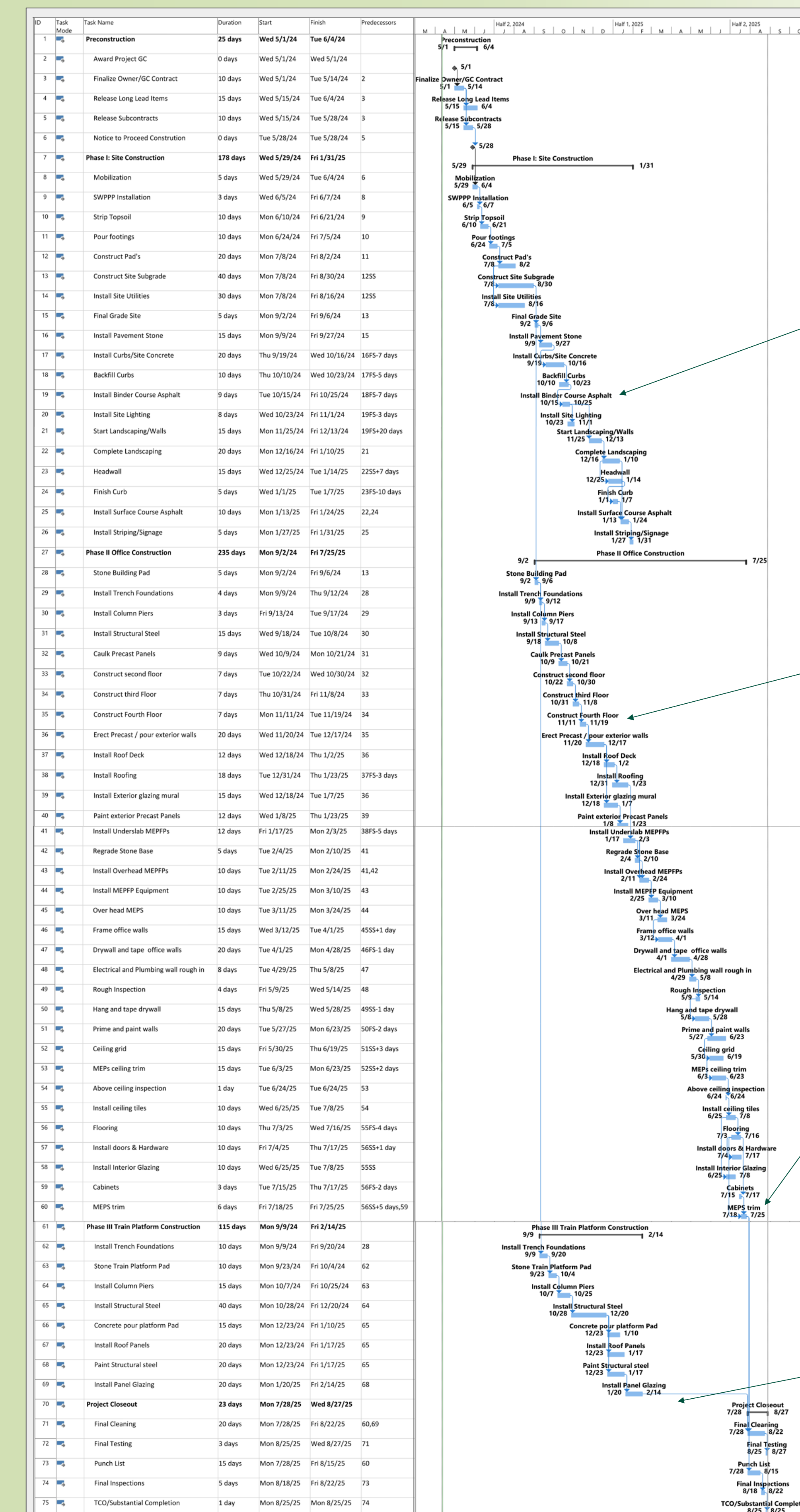
Clash between Plumbing and HVAC

Clash between Plumbing and Electrical

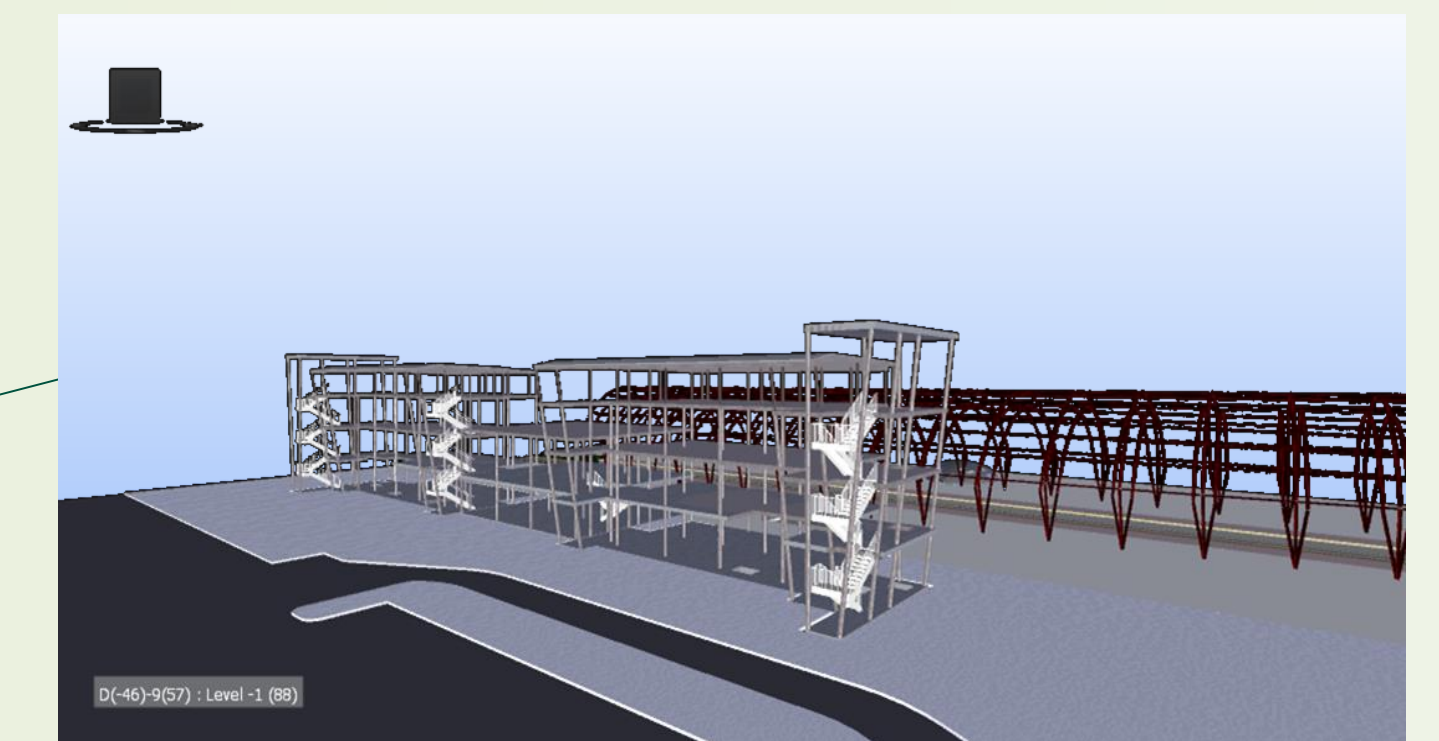
In our project, our primary emphasis was on pinpointing critical clashes between the structural elements of the Train Station and its MEP systems. Through this identification process, we can precisely relocate the MEP systems that are causing conflicts. Simply adjusting a pipe or duct will rectify the issue. Leveraging BIM, we obtain precise guidance on how and where to reconfigure the specific clash areas. By undertaking this proactive approach at the project outset, we can potentially save subcontractors and GCs significant costs, amounting to thousands of dollars.

## Scheduling

Project Duration: 5/1/24 - 8/25/25  
Total: 64 weeks



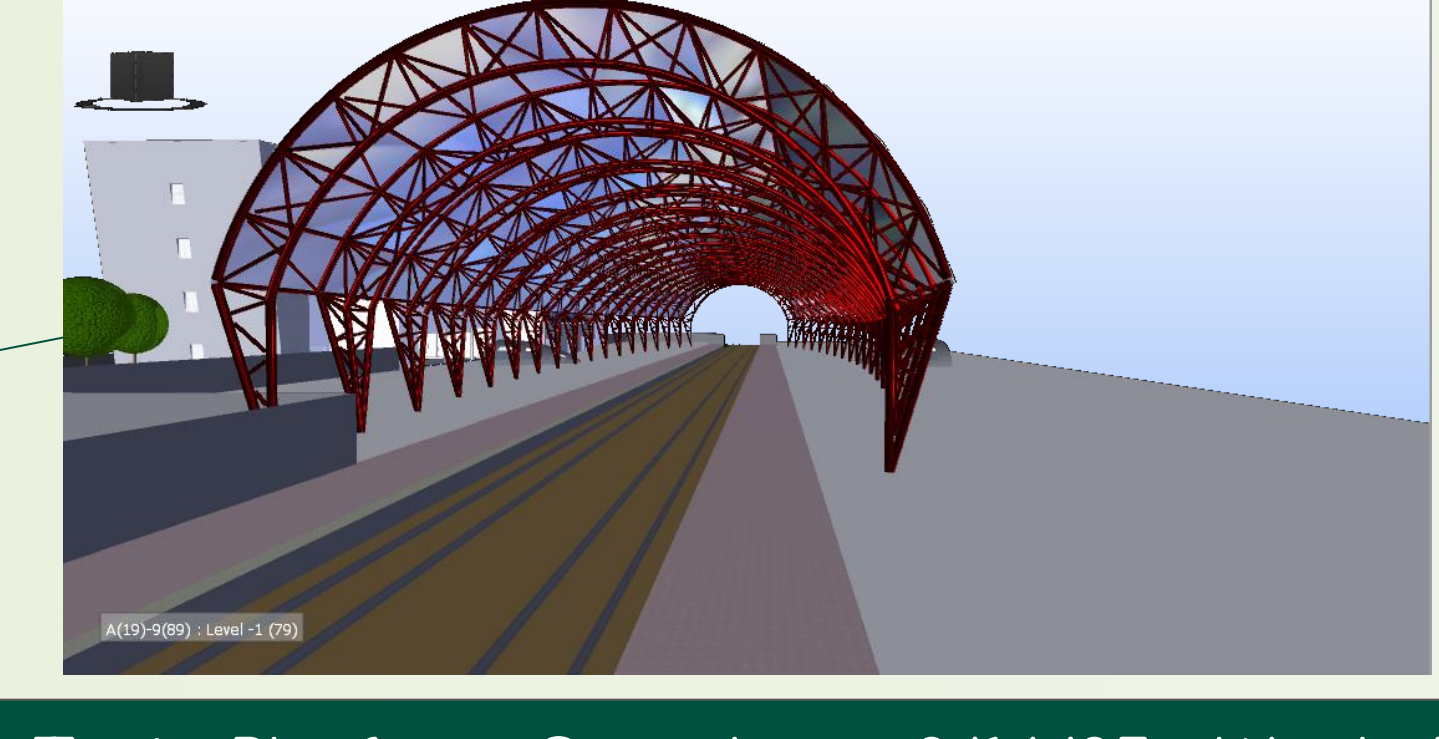
Site Work Halfway Through 10/25/24 - Week 10



Steel Erection Complete - 11/19/24 - Week 26



Train Station Complete - 7/25/25 - Week 64



Train Platform Complete - 2/14/25 - Week 48





## 4D Phasing based off Schedule

### Phase I

### Phase II

### Phase III



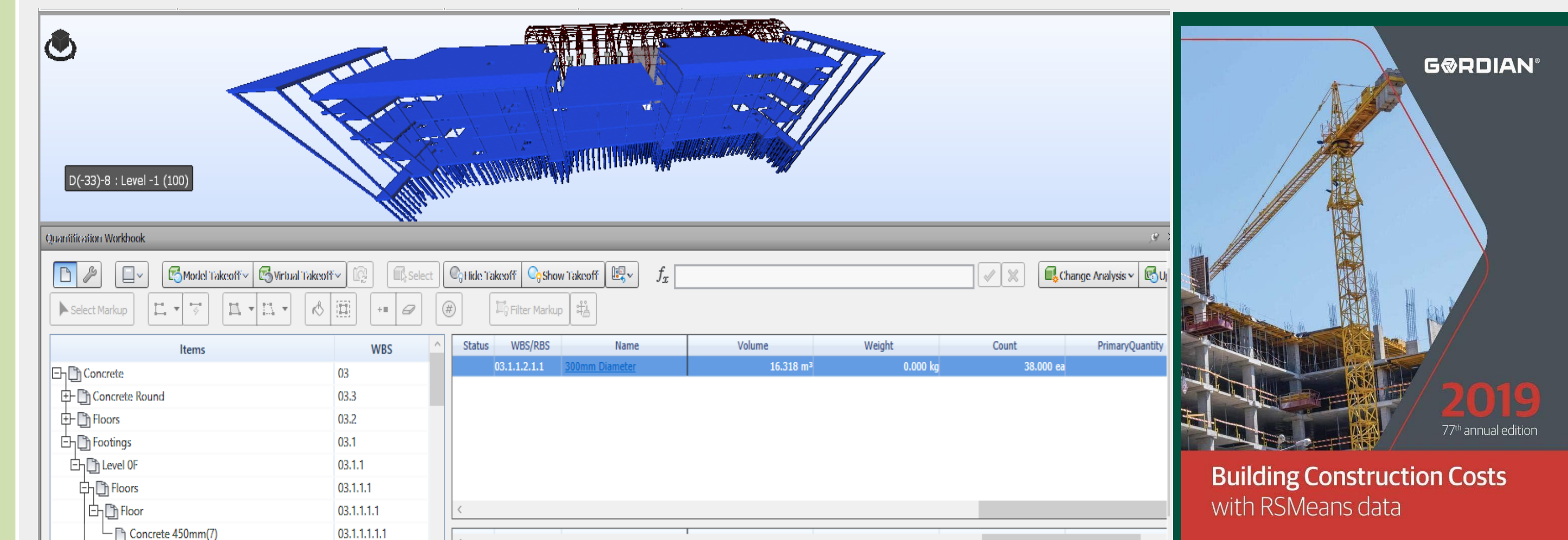
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## Estimating



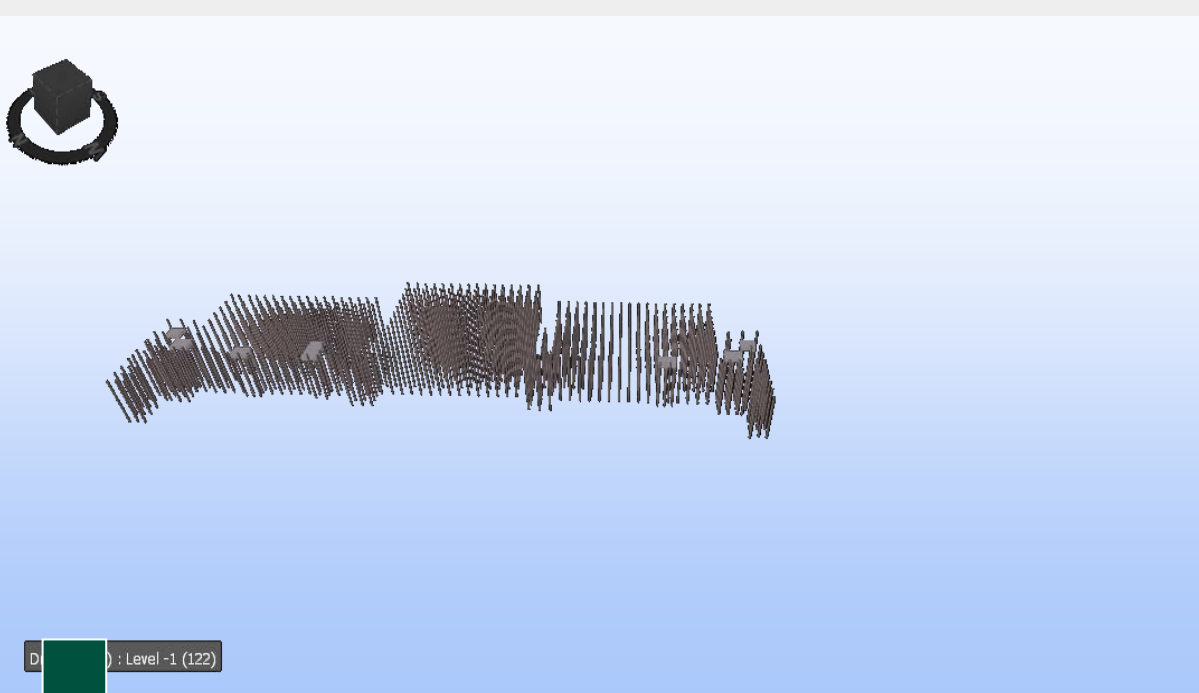
By using the quantification tool in BIM, we were able to find total volume and count of objects then we used the Means data book to find pricing. One issue we worked around is converting meter to yards for total volume

Building costs taken from RSMean data and adjusted for inflation

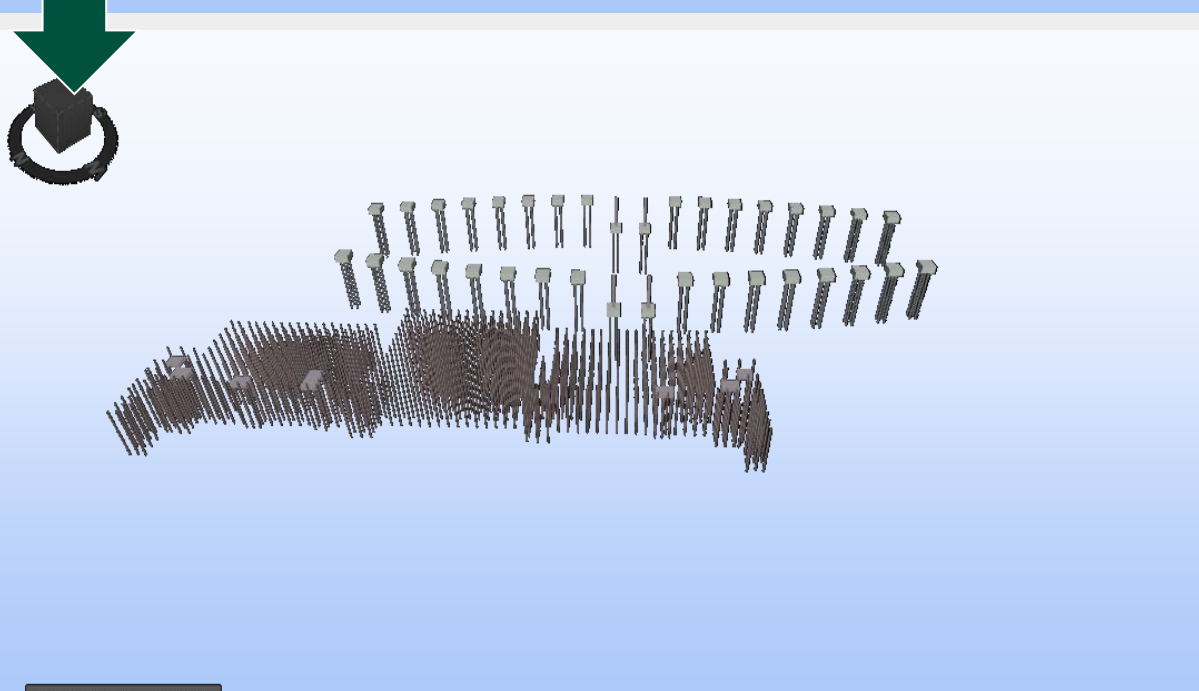
Concrete	Quantities	UN	UN Cost	
<b>Shell Bldg Total Cost</b>				\$ 2,890,265.00
Footings & Foundations	3,531.80	Volume in M	\$245.00	\$ 865,291.00
Concrete Slab	3,567.86	Volume in M	\$245.00	\$ 874,125.70
Wall Panels	2,677.50	Volume in M	\$245.00	\$ 655,987.50
Misc. Concrete	2,019.84	Volume in M	\$245.00	\$ 494,860.80
<b>Subtotal</b>				\$ 2,890,265.00

Example of the Concrete Estimate. Footings & Foundations include platform and station. Concrete slab covers all concrete on grade. Wall Panels are precast panels and tilt up. Misc. Concrete is any structural and poured concrete needed for the station. To find subtotal multiply Quantity by UN Cost

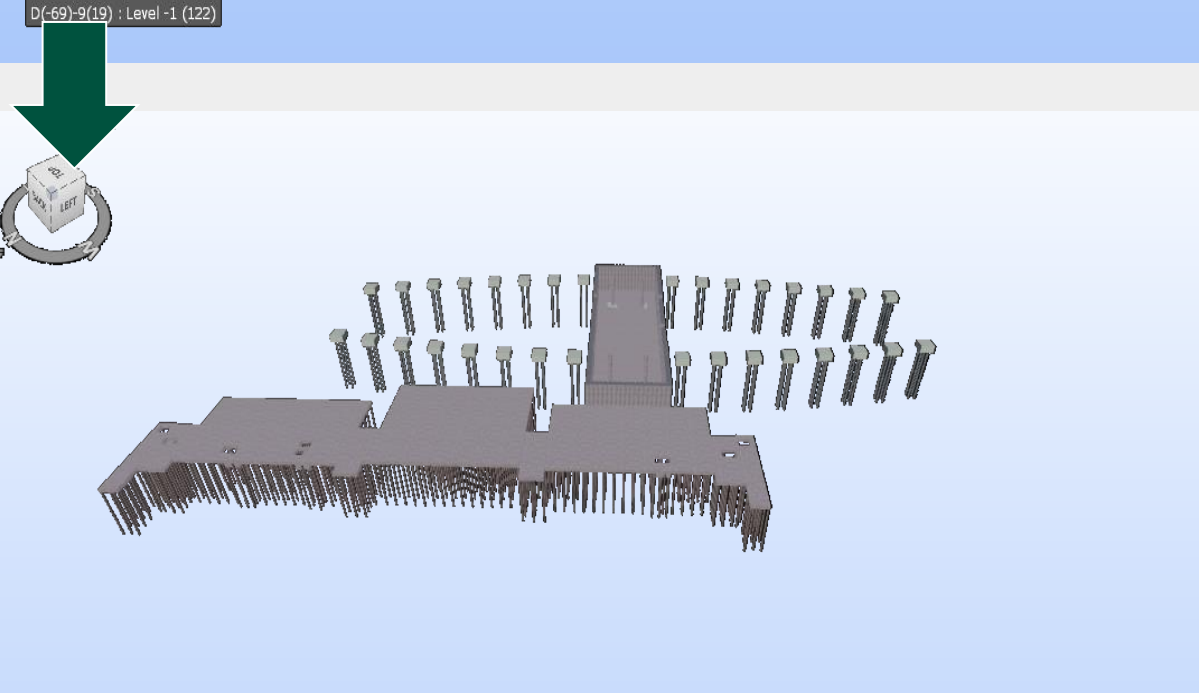
Project: Millennium Station	Contact	PJ Brocius
Location: Chicago, IL		Cost
Permits and Fees		
<b>Subtotal</b>		\$ 15,000.00
Site Construction Costs		
<b>Subtotal</b>		\$ 4,282,163.93
Train Platform/Station Costs		
Concrete		\$ 2,820,028.00
Structural Steel		\$ 1,609,100.00
Woods & Plastics		\$ 12,255.00
Thermal & Moisture Barrier		\$ 1,077,534.00
Doors & Windows		\$ 290,027.00
Finishes		\$ 152,739.64
Specialties		\$ 2,250.00
Signage		\$ 20,000.00
Special Construction		\$ 426,720.00
Mechanical		\$ 278,650.00
Electrical		\$ 356,500.00
<b>TOTAL BUILDING SHELL COSTS:</b>		\$ 7,243,403.64
General Conditions		
<b>Subtotal</b>		\$ 812,416.76
<b>Contractor Const. Grand Total</b>		\$ 12,352,984.32



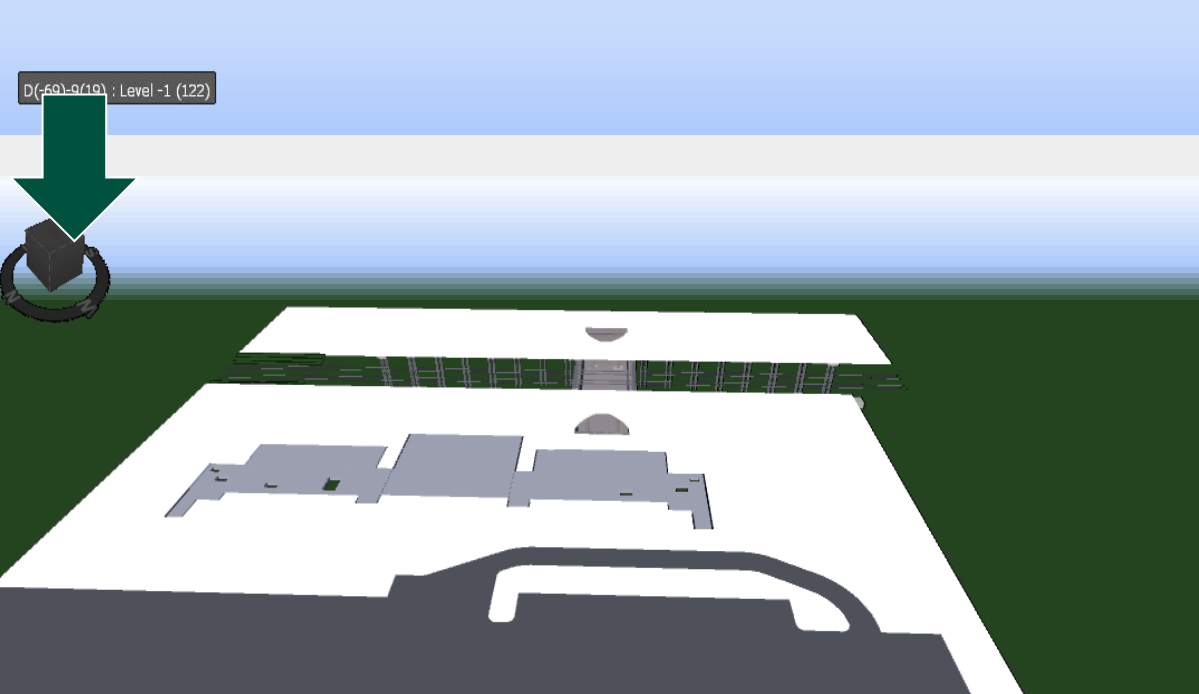
**Week: 4-5**  
Footing Pour  
For Train  
Station



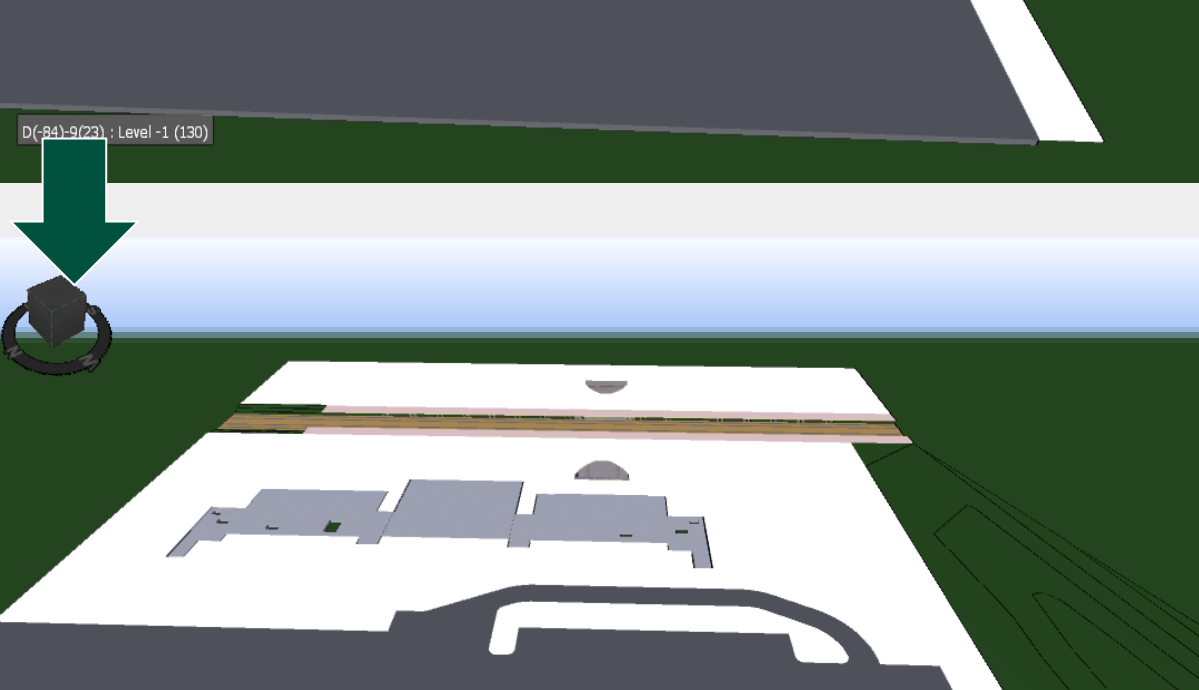
**Week: 5-7**  
Footing Pour  
For Train  
Platform



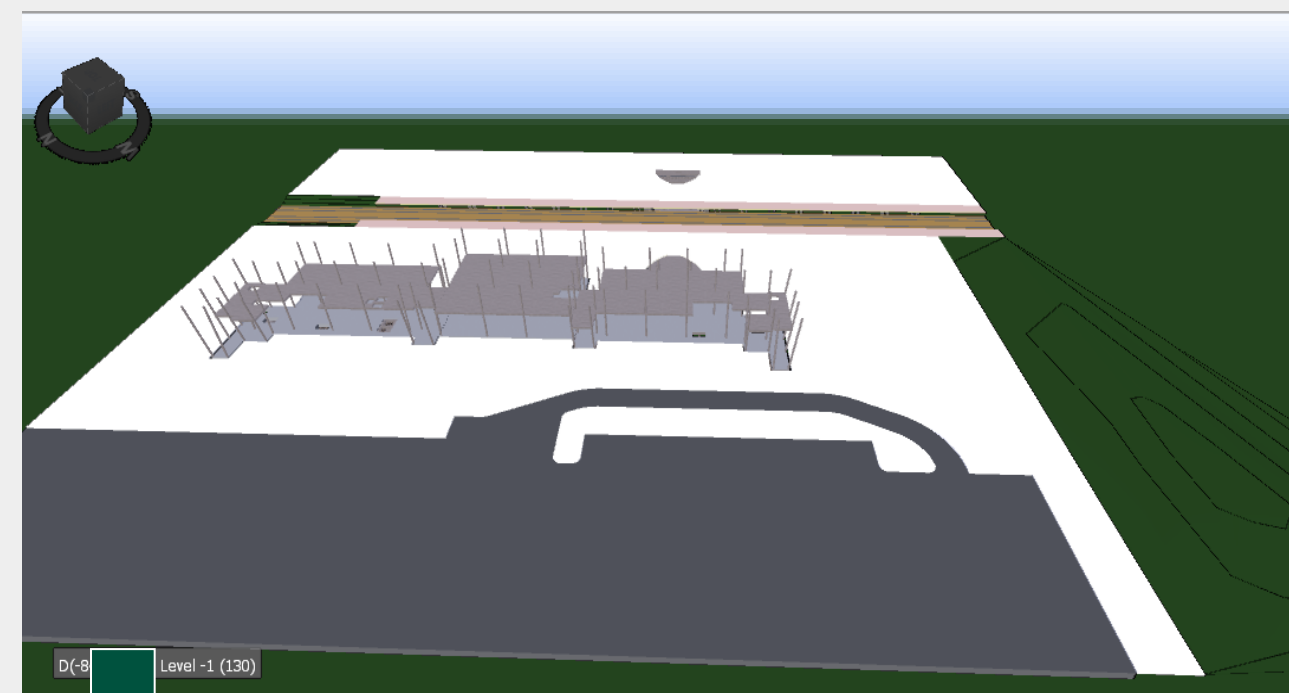
**Week: 8-9**  
Pour Pad For  
Train Station



**Week: 10-15**  
Site Pad Pour  
and Lay Asphalt



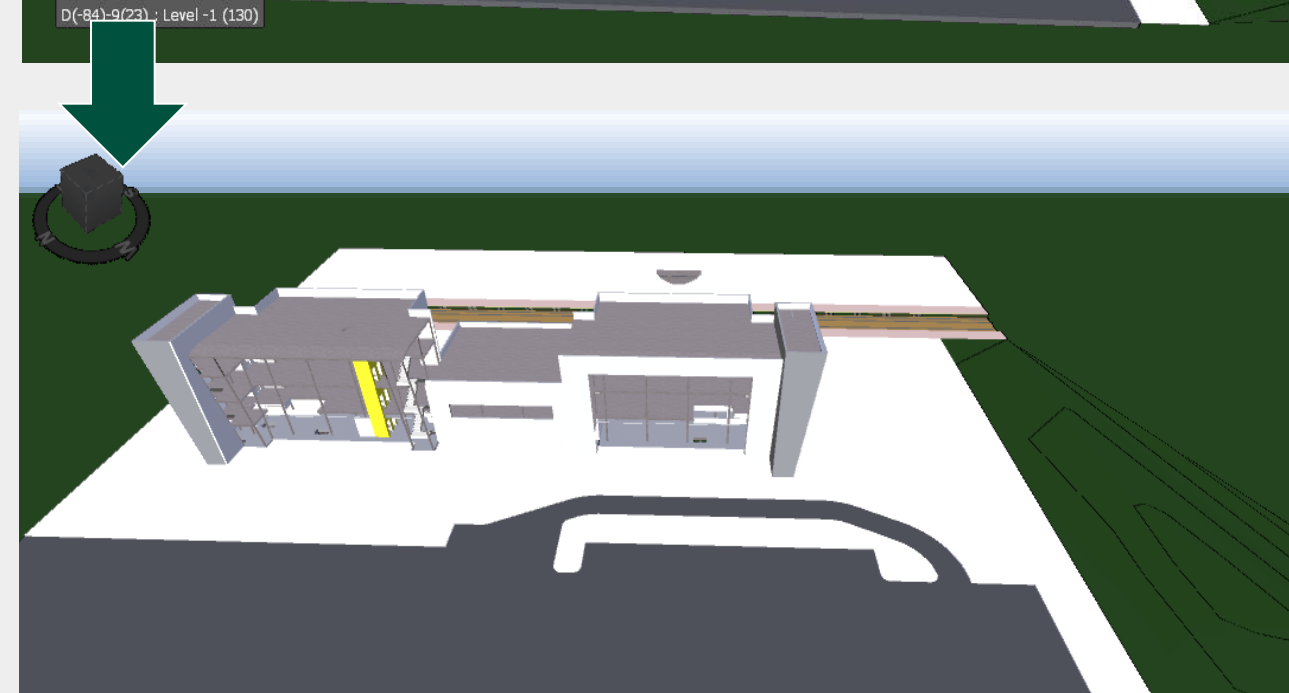
**Week: 16-20**  
Train Tracks  
Set



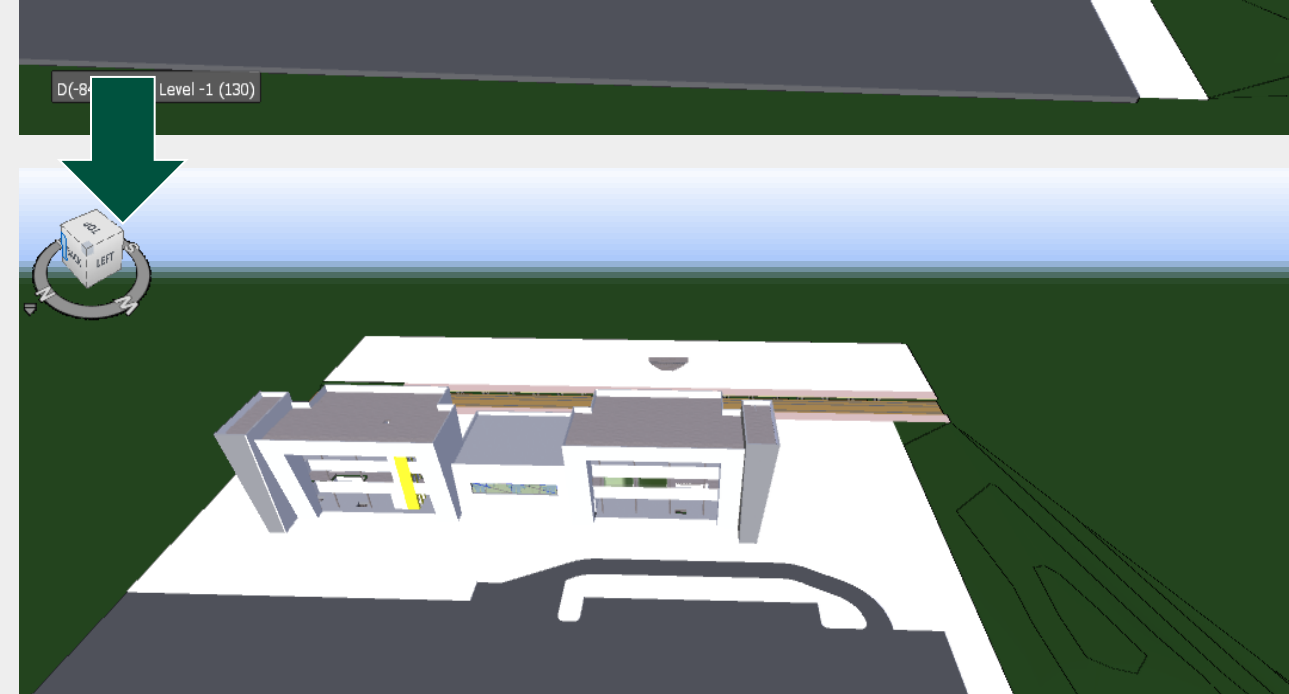
**Week: 21-24**  
Level 1 & 2  
Structural Steel  
Erected for  
Train station



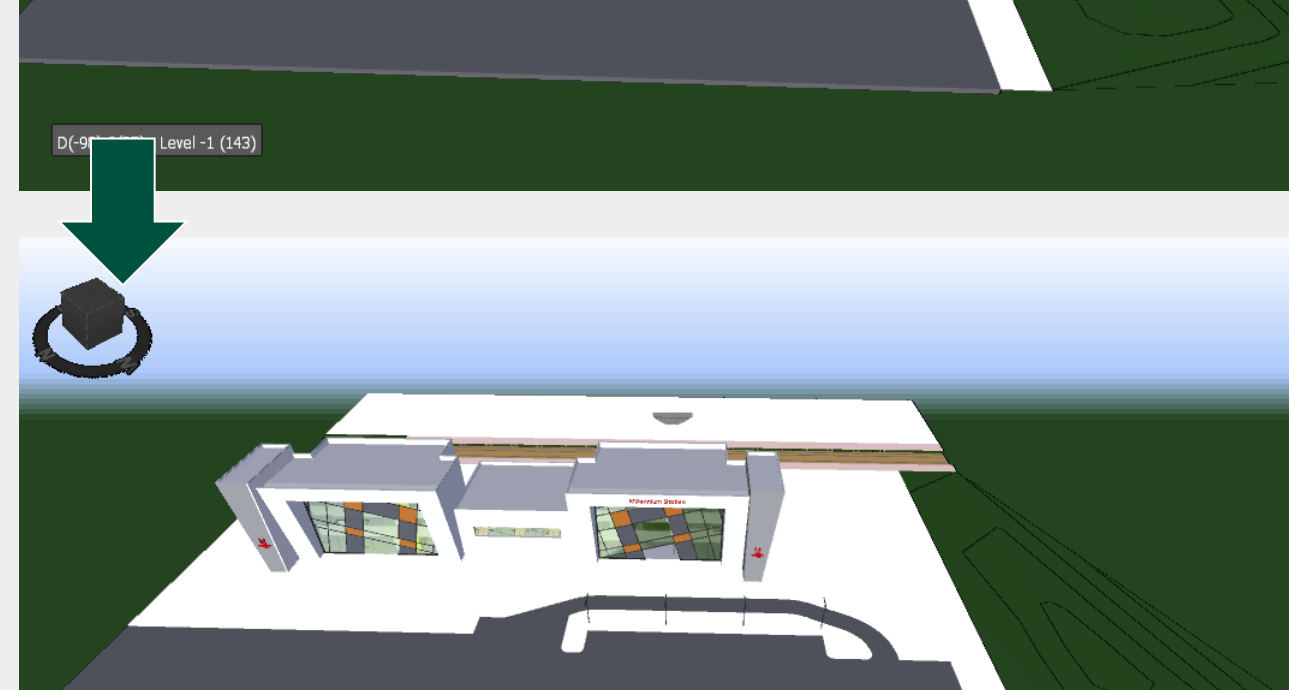
**Week: 25-29**  
Level 3 & 4  
Structural Steel  
Erected for  
Train station



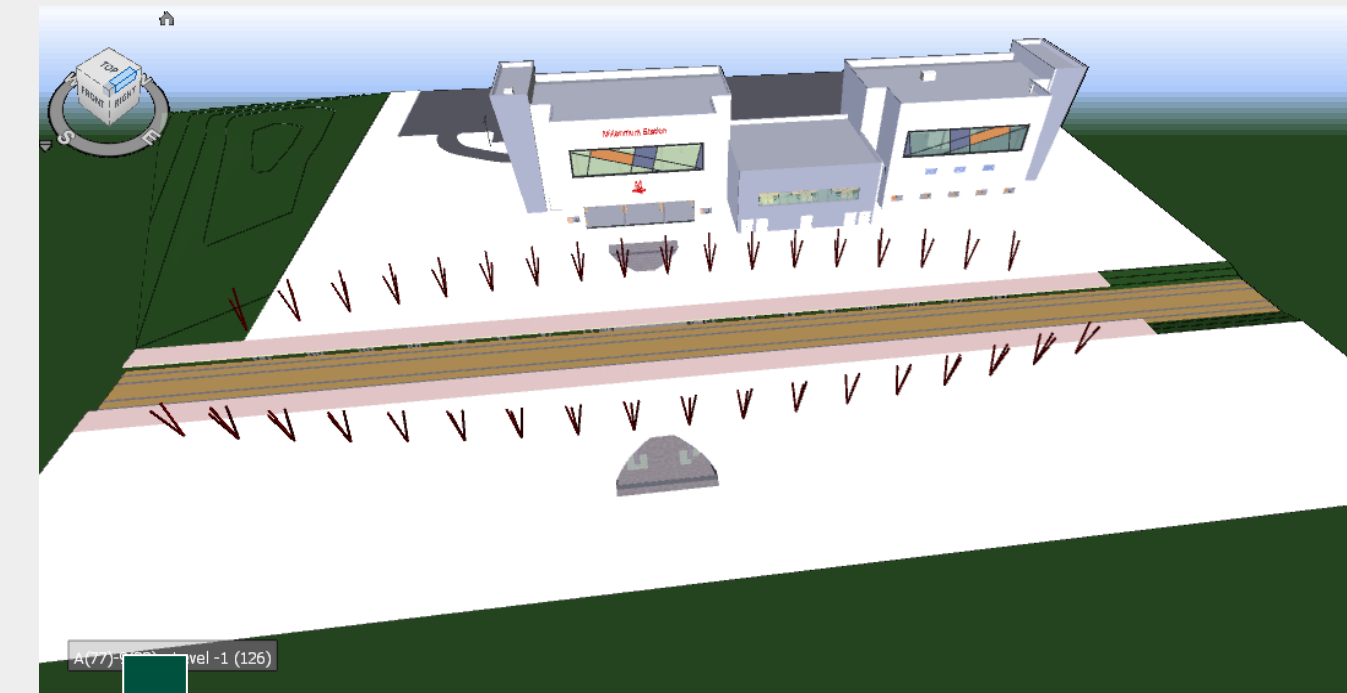
**Week: 30-35**  
Precast Concrete  
Stand up



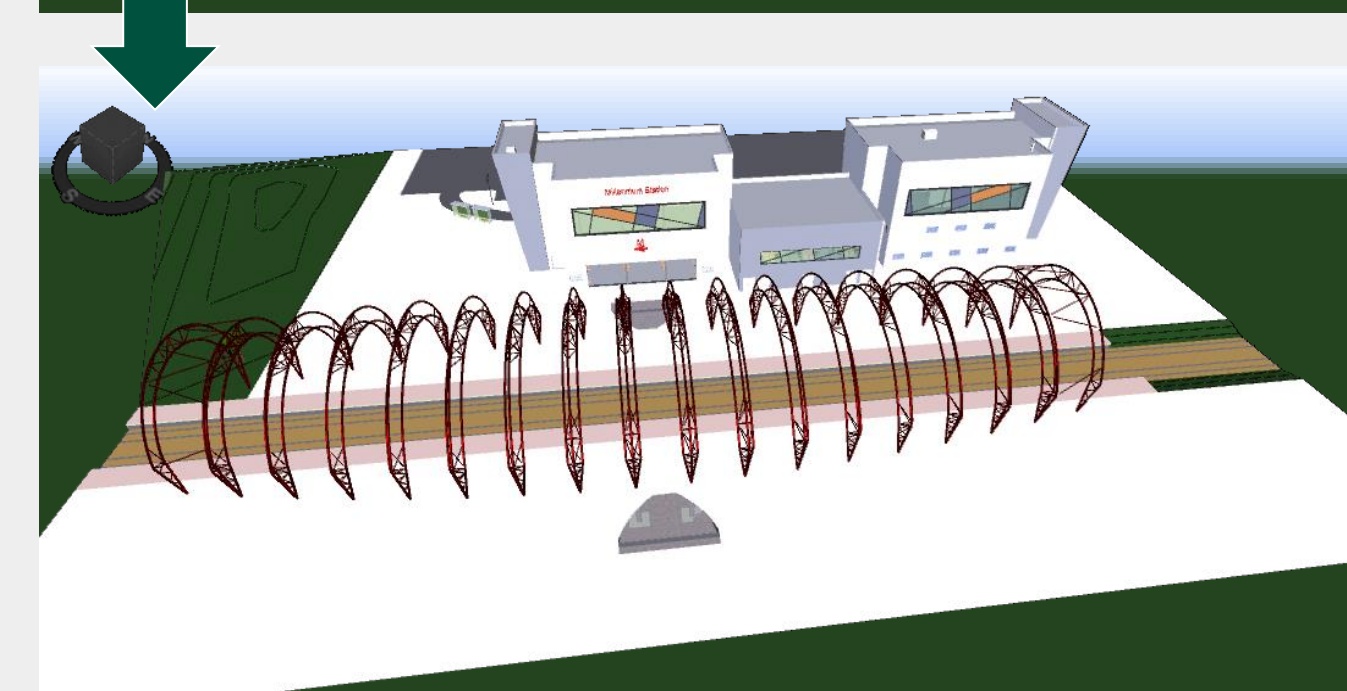
**Week: 36-41**  
Concrete Walls  
poured MEP  
installed



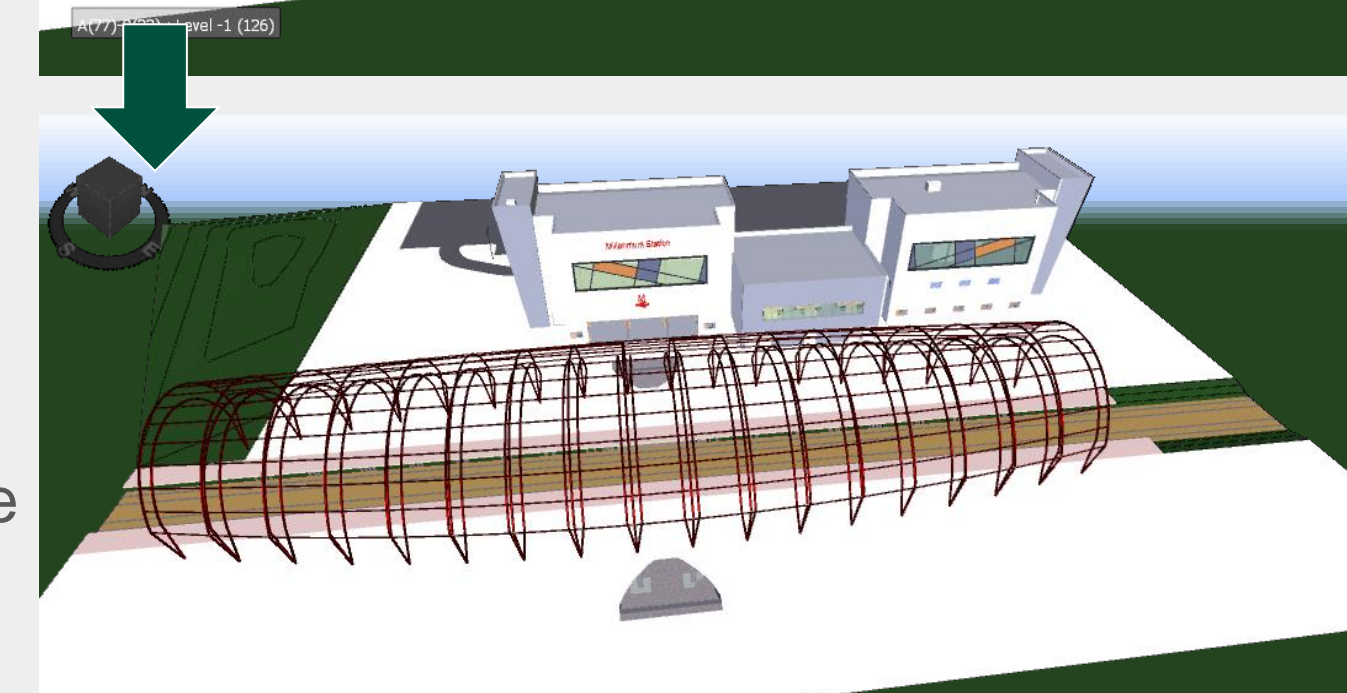
**Week: 41-54**  
Train Station  
Complete:  
Glazing and  
siding finished



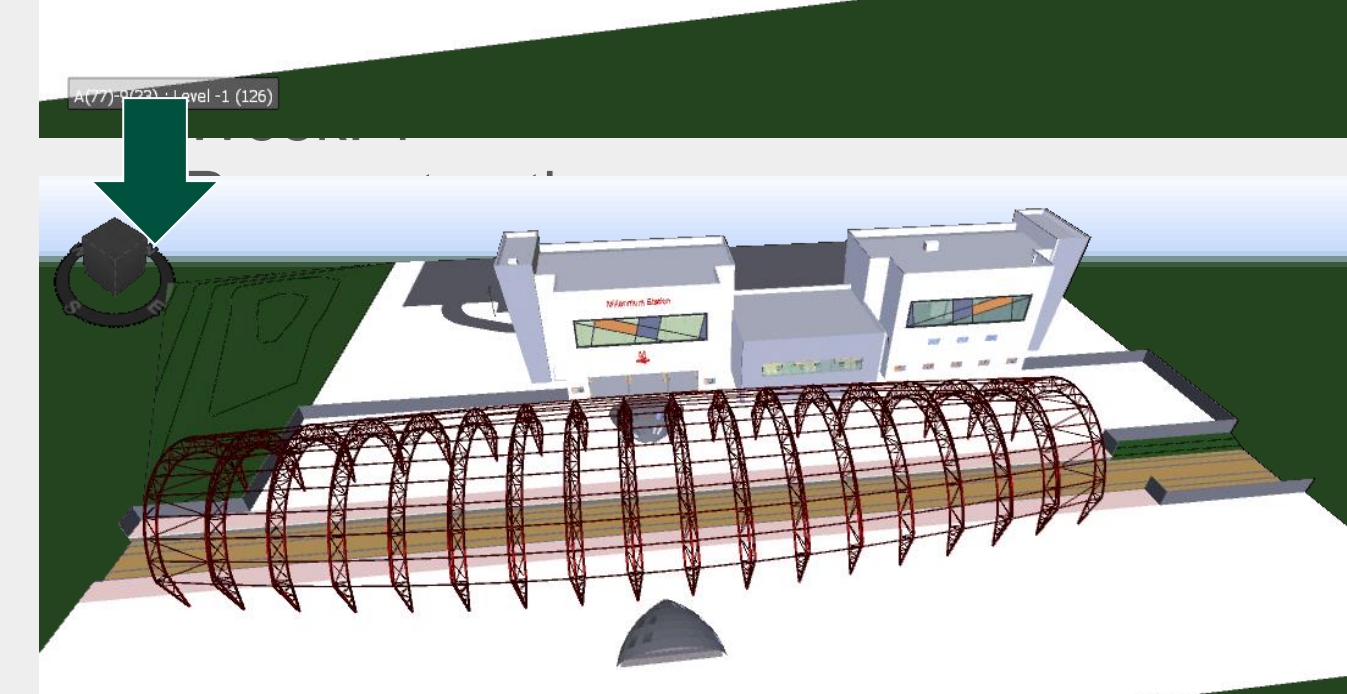
**Week: 24-26**  
Steel Erection  
begins



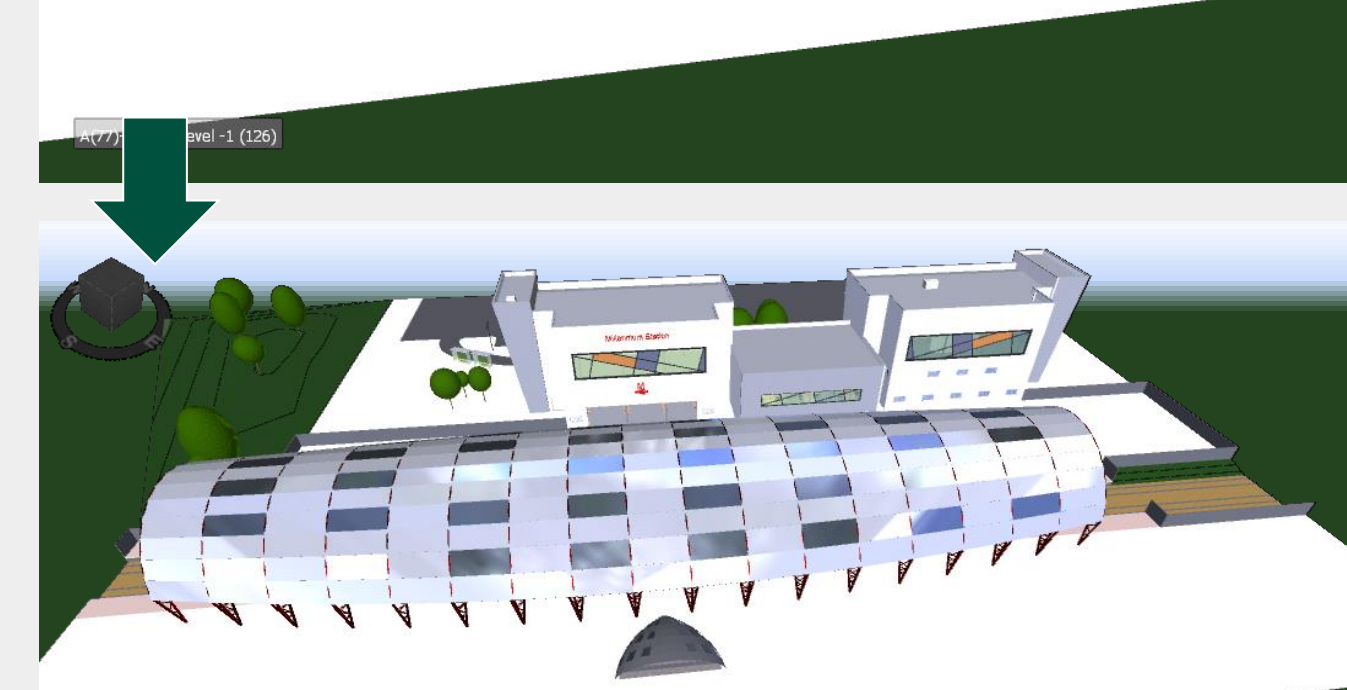
**Week: 27-28**  
Steel Erection  
Trusses



**Week: 29-30**  
Steel Trusses  
connected



**Week: 31-32**  
Additional Steel  
reinforcing +  
Retaining Walls  
Poured



**Week: 64**  
Project Complete