Phoenix Engineering

Group 1: Phoenix Engineering

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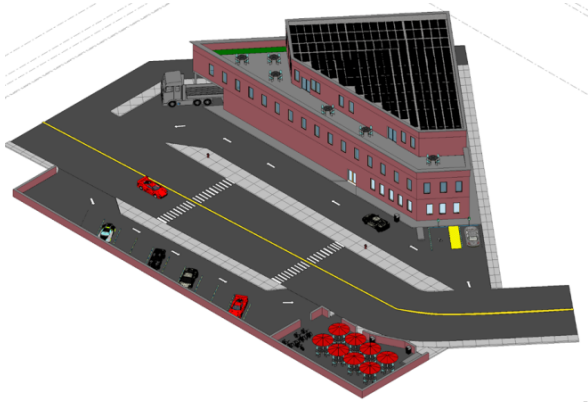


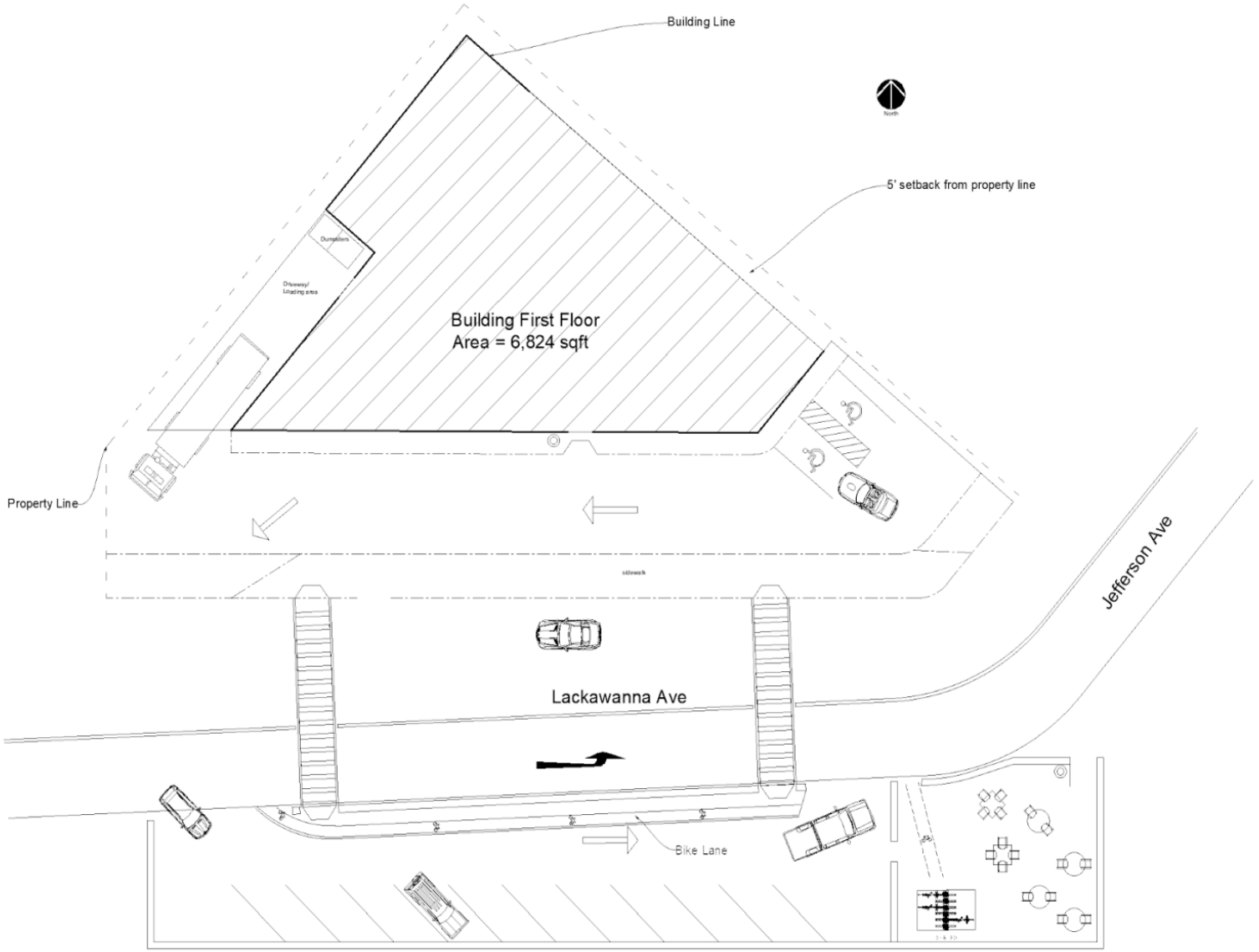
Outline

- Site Plan
- Building Plans
- Sustainability
- Structural and Material System
- Framing
- Cross Sections
- Longitudinal Sections
- Wall Section Details
- Elevations
- 3D model of the building

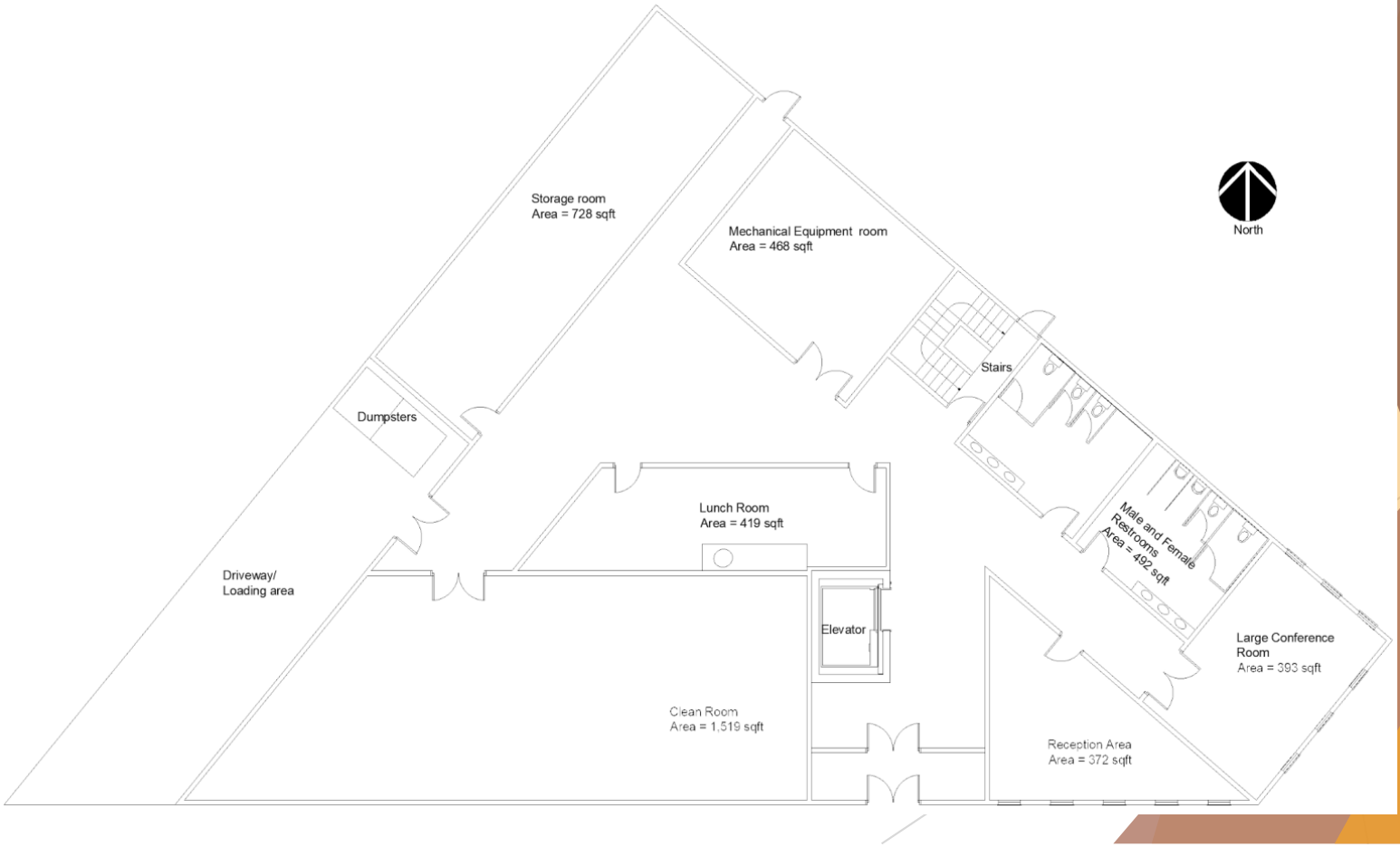
Site Plan

Site Address:

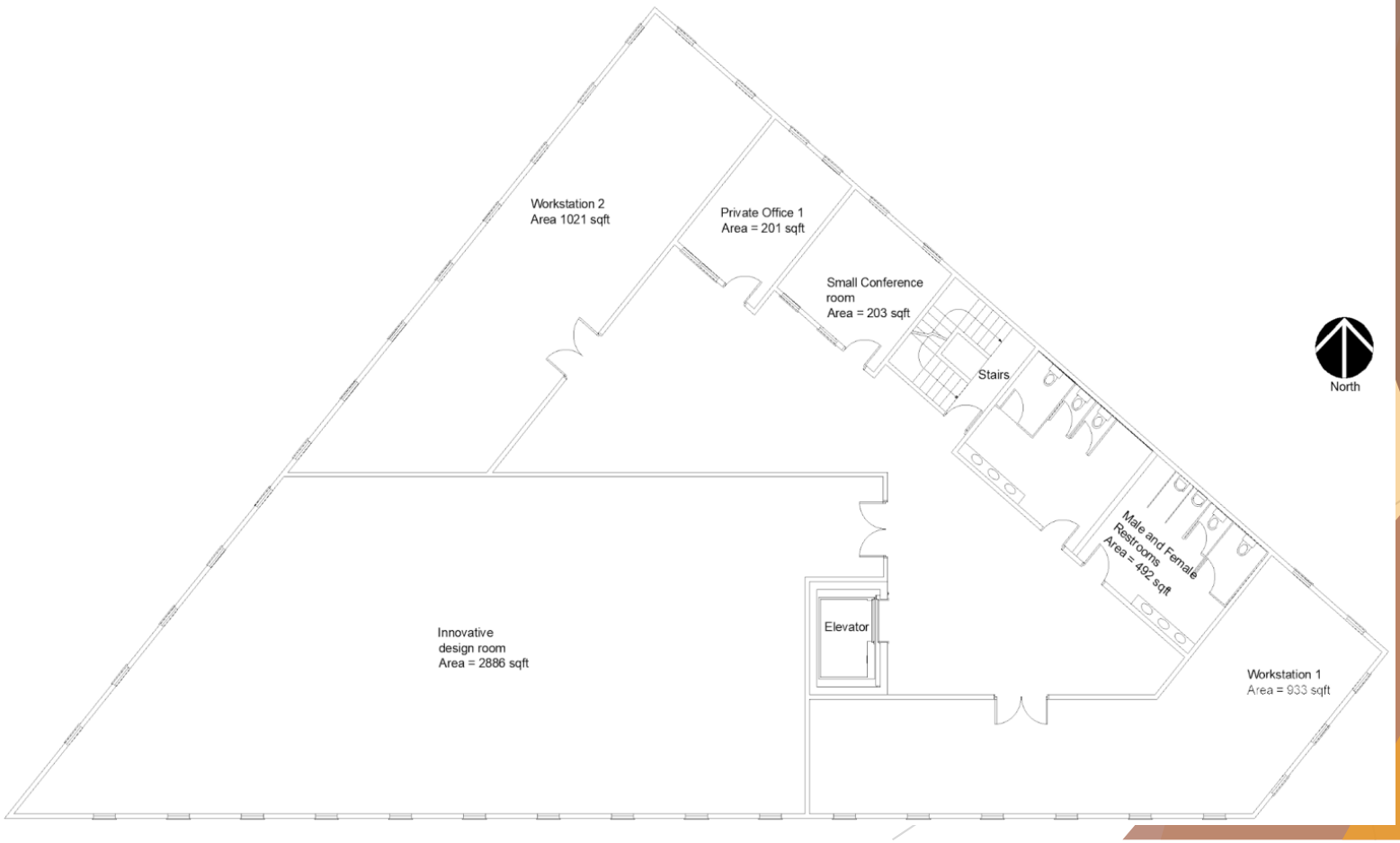
101 Jefferson Ave
Scranton, PA 18503



Building Plan-First Floor

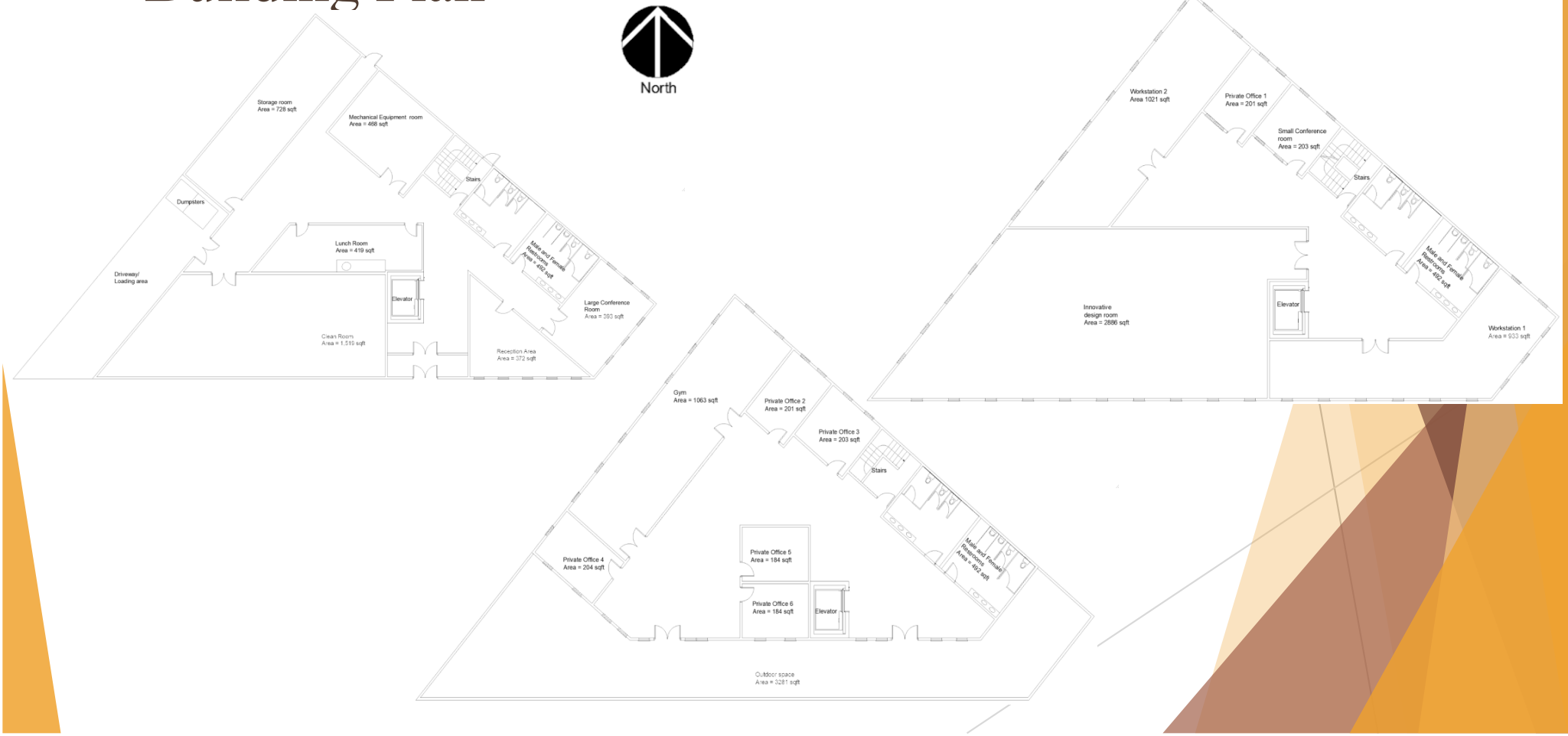


Building Plan-Second Floor



Building Plan-Third Floor

Building Plan



Sustainability

- Protecting the environment is a priority.
- The objective is making sure it benefits both the Earth and the people who will be working in the building.
- Some ideas include:
  - Installing a roof garden on the third floor of the building (open space)
  - Solar panels
  - Installing a second exterior door at the entrance of the building.

Refer to the 3D model for visualization

Building Plan-Third Floor

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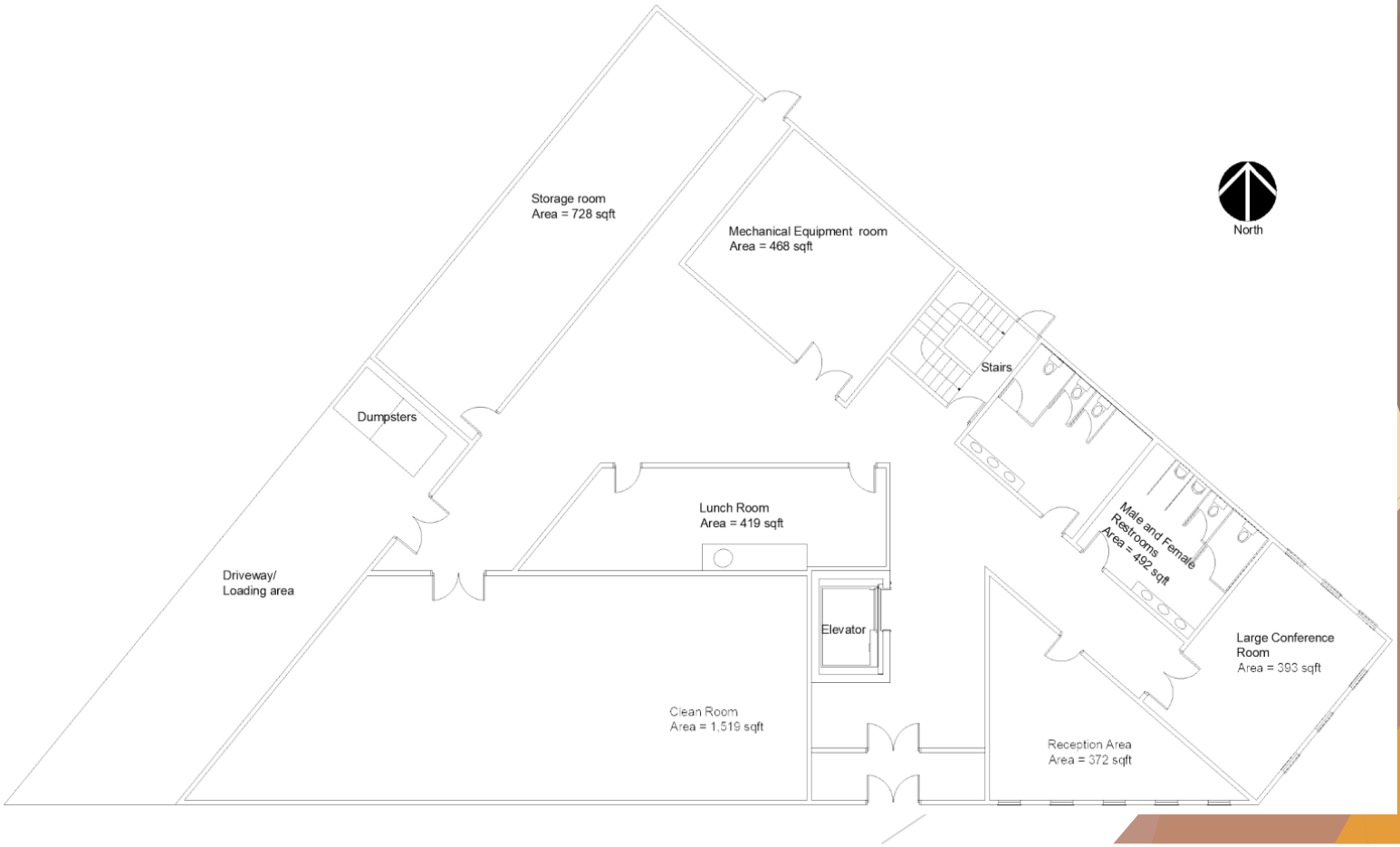
Building Plan-First Floor



Structural and Material Systems

The structural systems we considered for the project were:

- **Heavy Timber**
- **Concrete Frame**
- **Steel Frame**

Structural and Material Systems

After carefully looking over pros and cons of each types of structural system that will be suitable for this project, we had considered to use the **Steel Frame system**.

The reasons are:

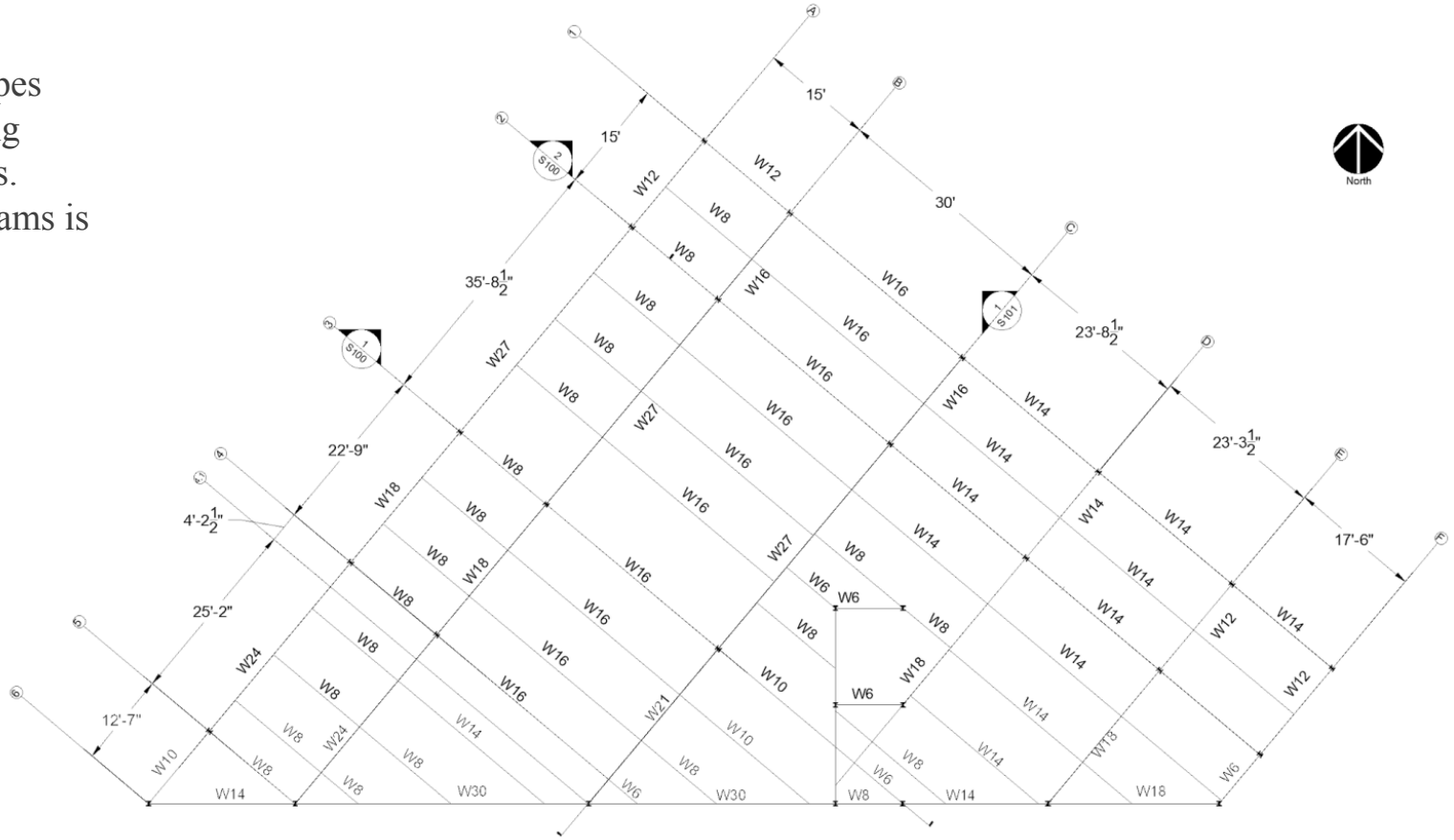
- Time and Cost
- Strength
- Weighs less than concrete
- Desired size and shape can be produced
- Easy and fast to assemble
- High load capacity
- Non-combustible and fire resistant

Structural and Material Systems

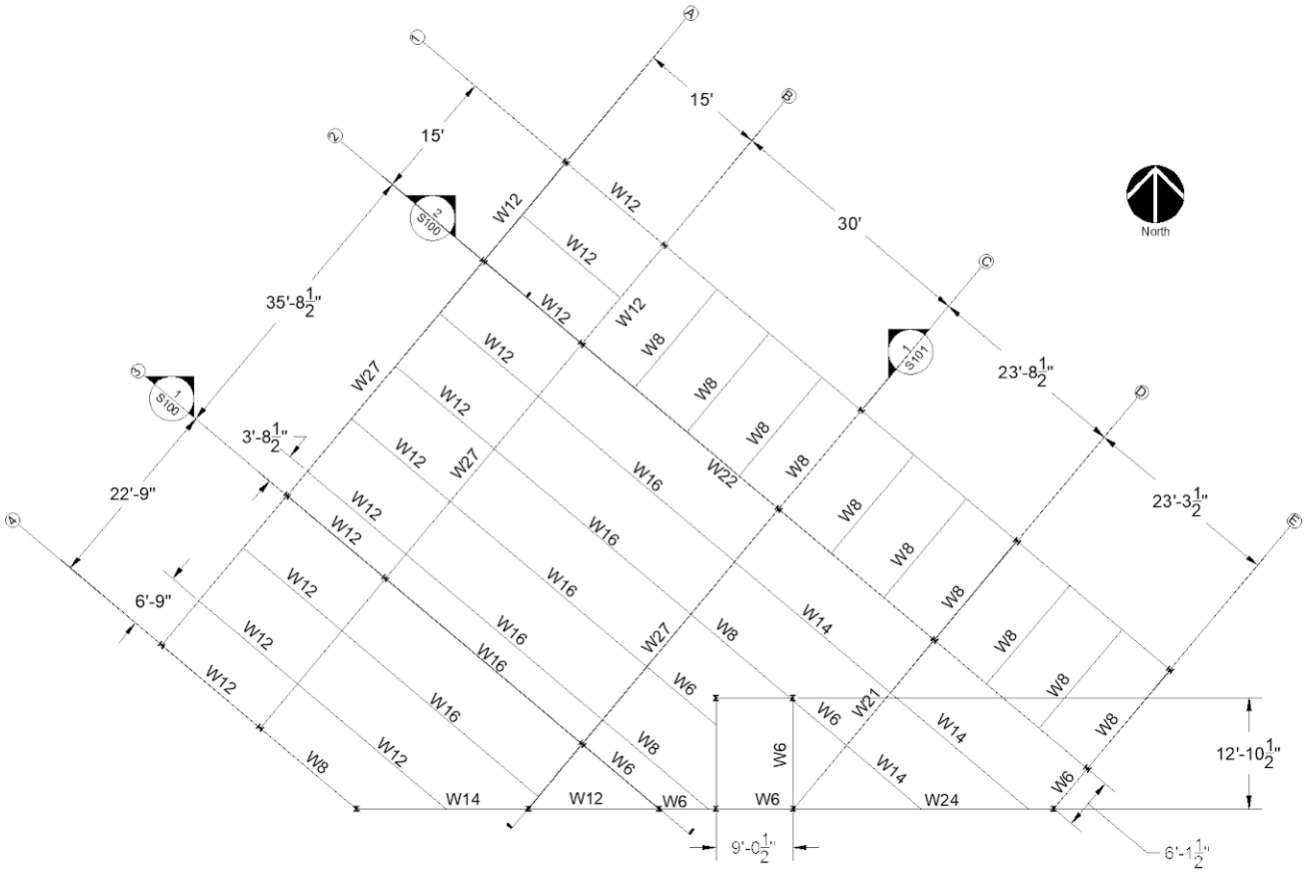
- Foundation System:
  - Shallow Foundation
  - Isolated Footings (5’ Depth)
- Voids Filled with 6” CMU
- Interior Partitions: Light Gage Steel, ⅝” Sheetrock Panels
- Suspended Interior Ceiling

Framing- First Floor & Second Floor

- Girder and Beam types were calculated using appropriate formulas.
- Spacing between beams is from 8-12 feet.

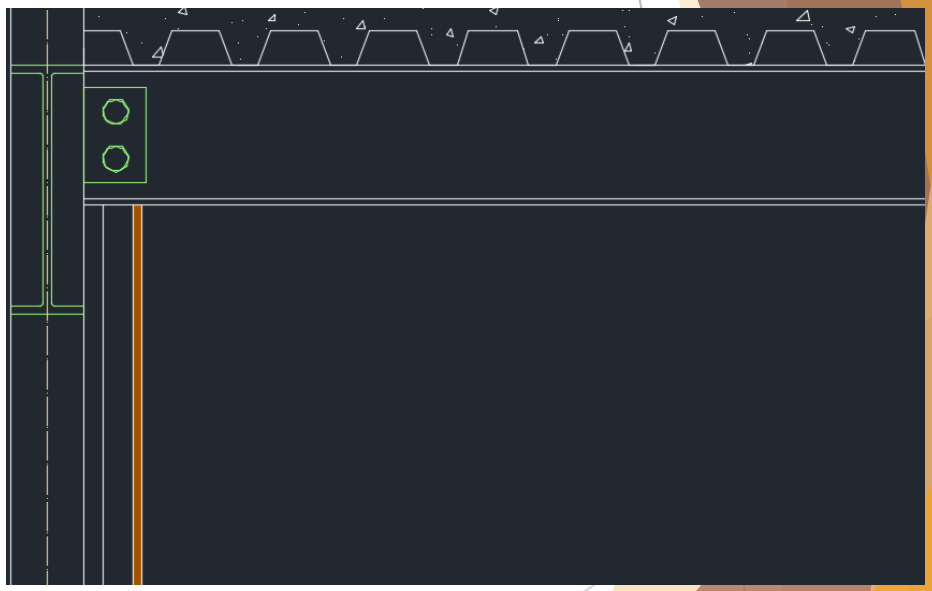


Framing-Third Floor

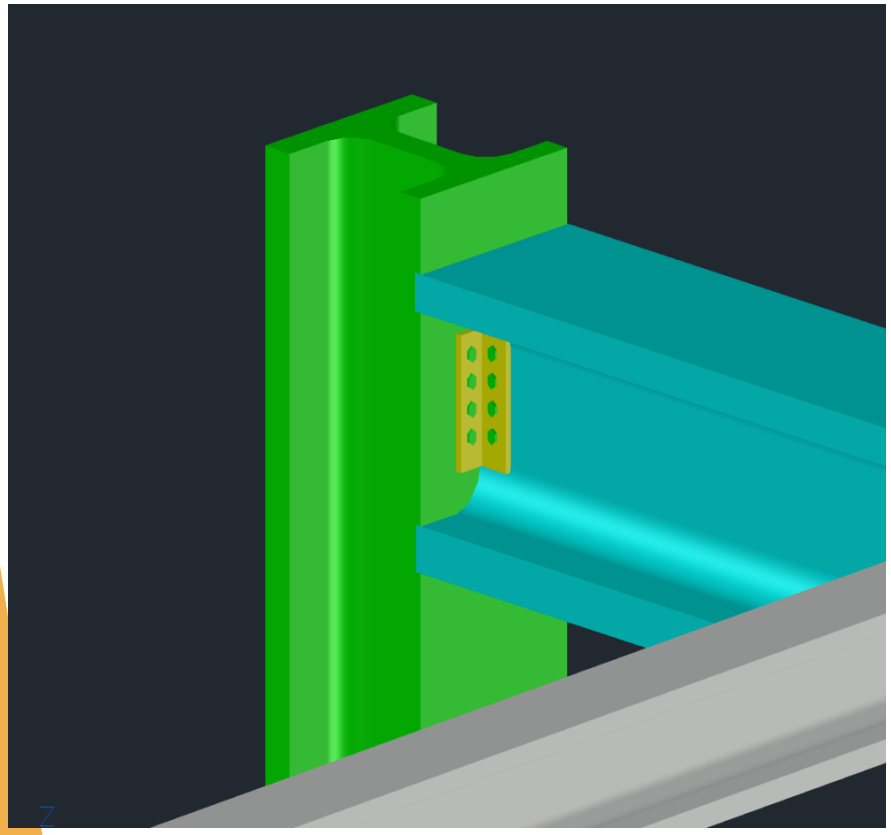


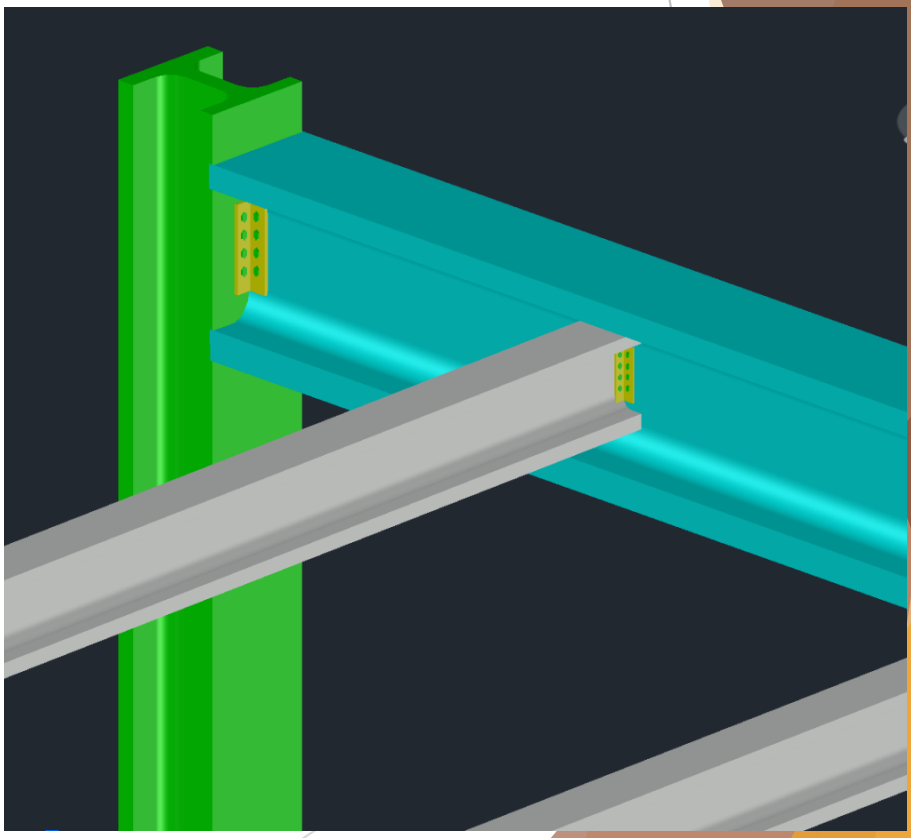
Intersection of Framing Members

- Bolts being used.
- Metal Decking are above each beam.
- 6” columns

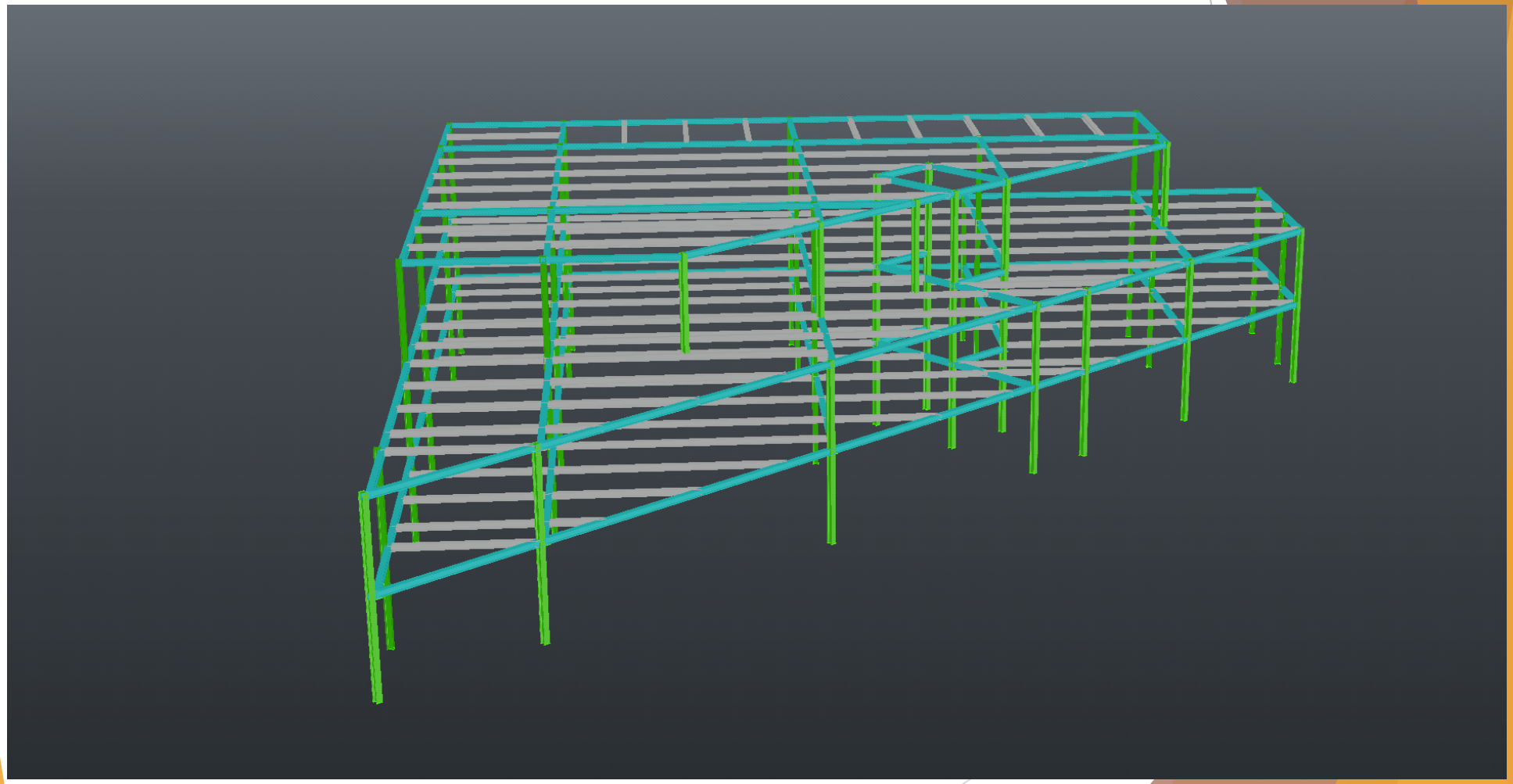


3D Representation of Intersections

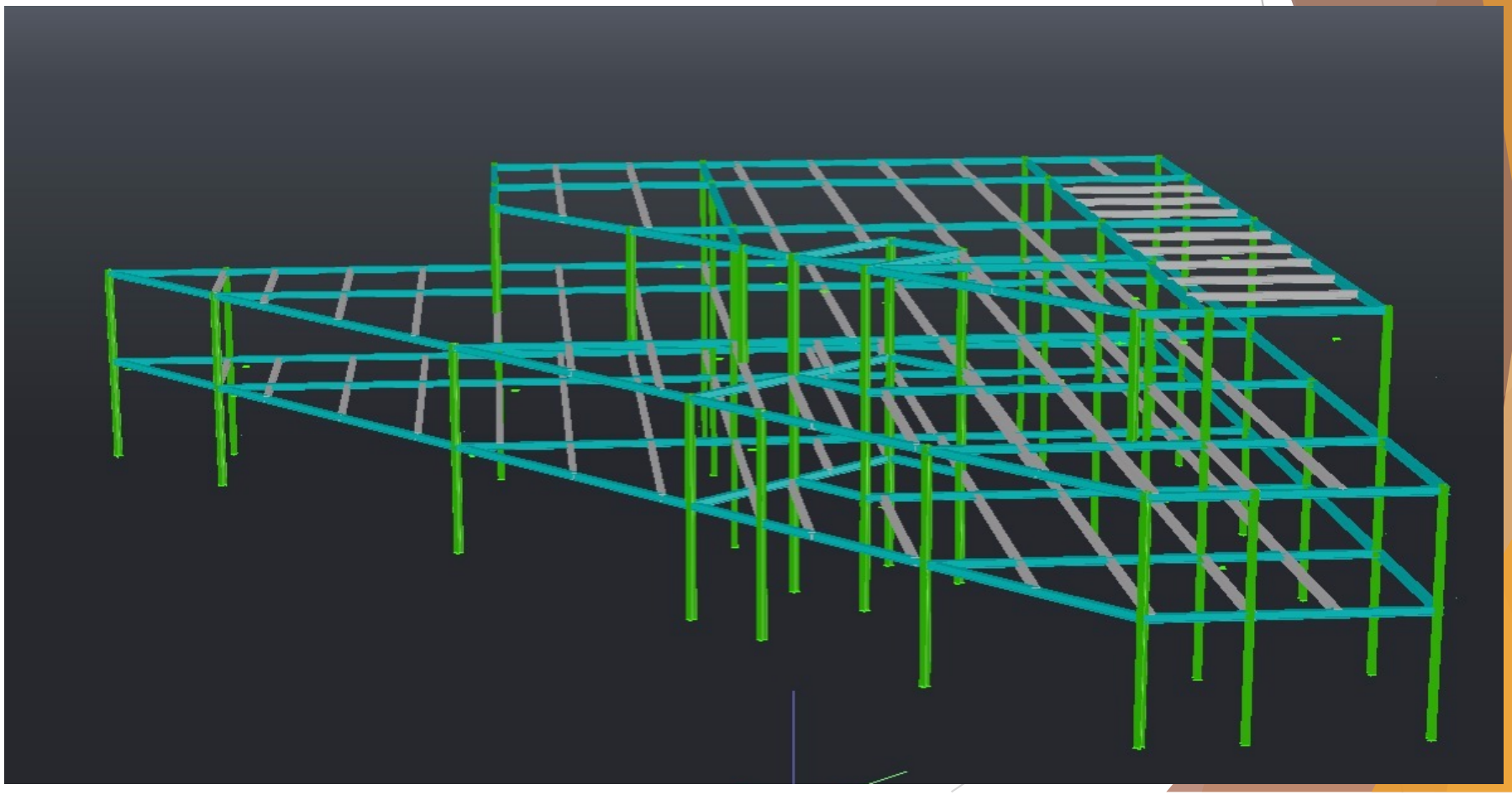




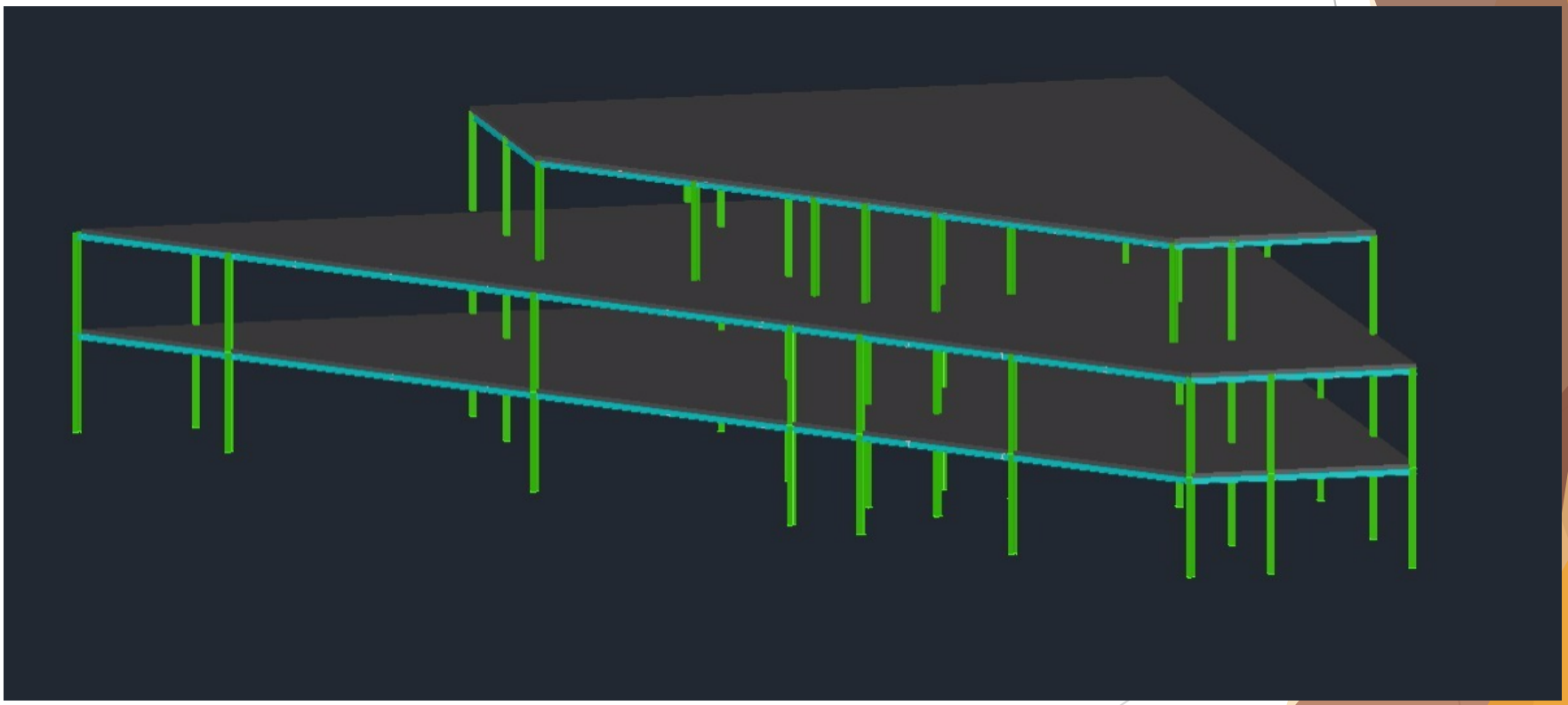
Framing Plan in 3D



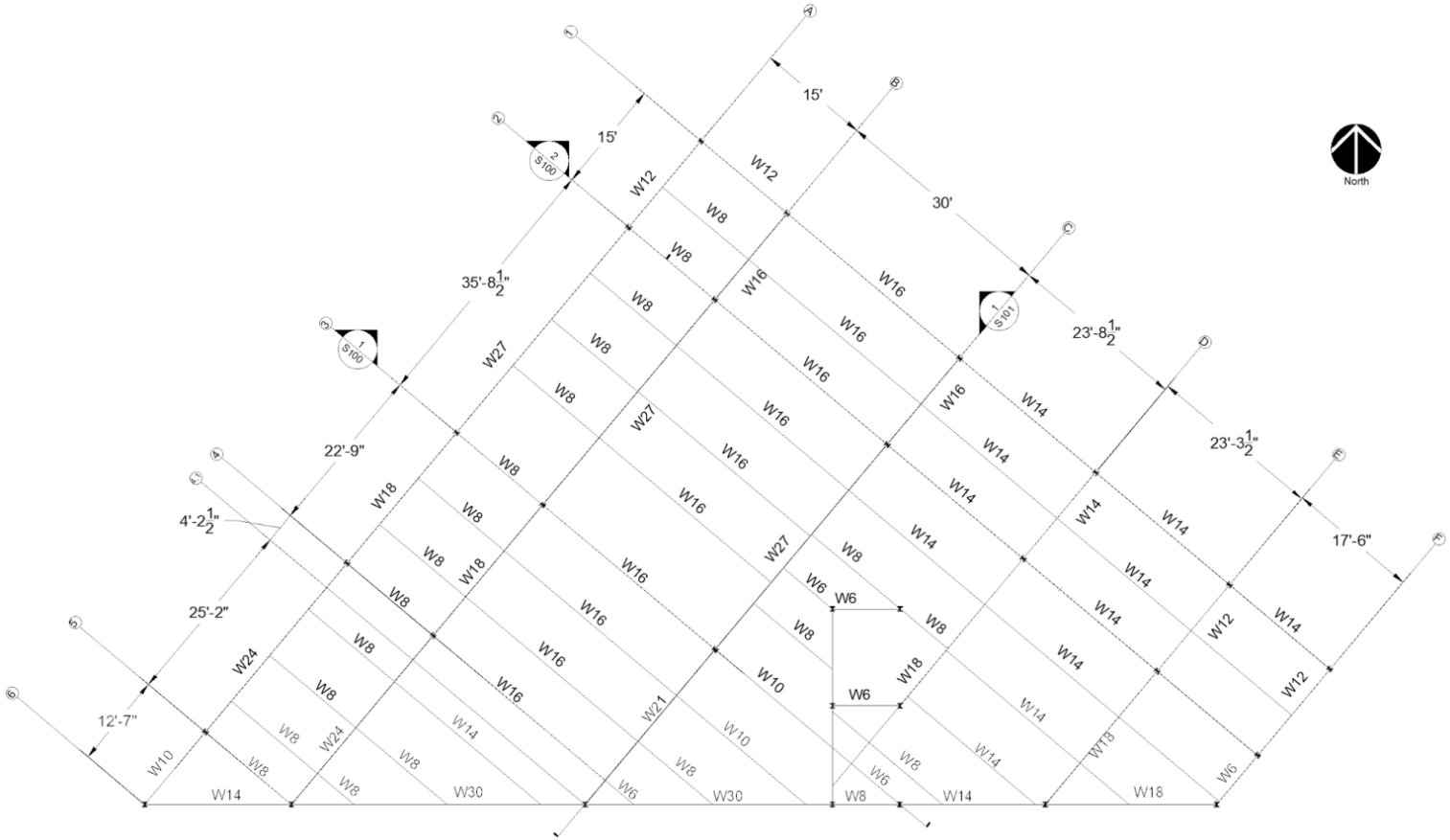
3D Framing Model



3D Framing Model With Concrete Slab

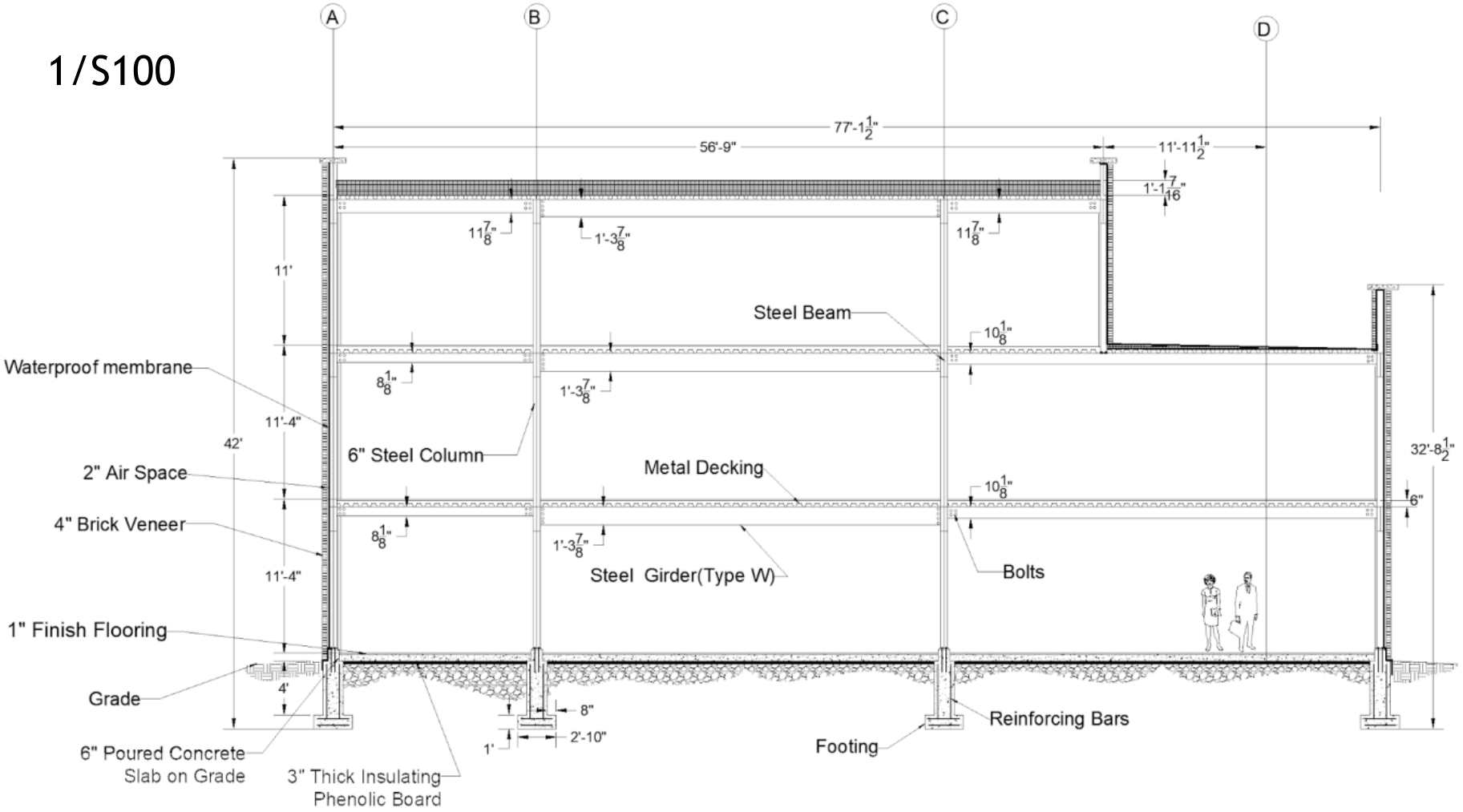


Framing Plan First and Second Floor



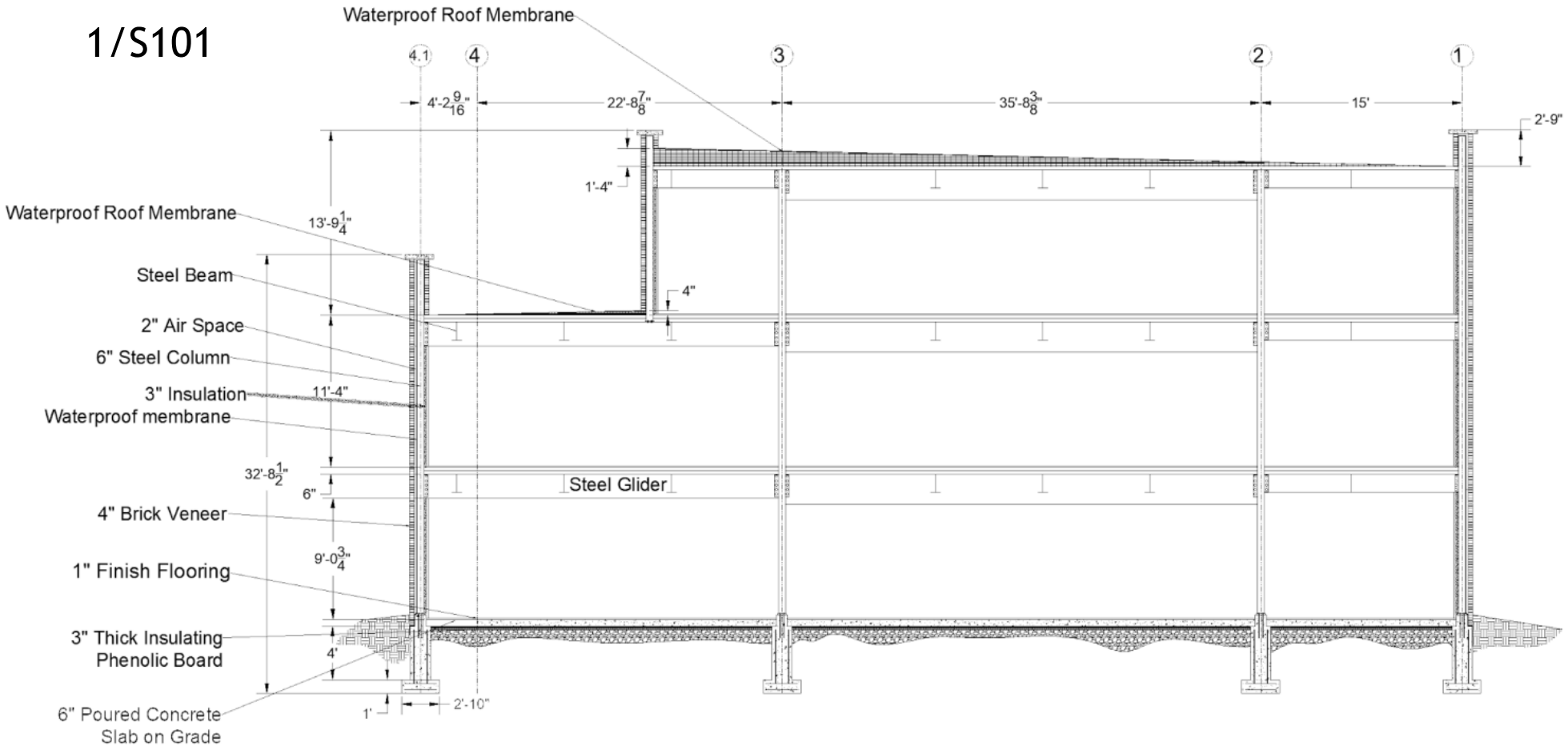
Cross Sections

1/S100



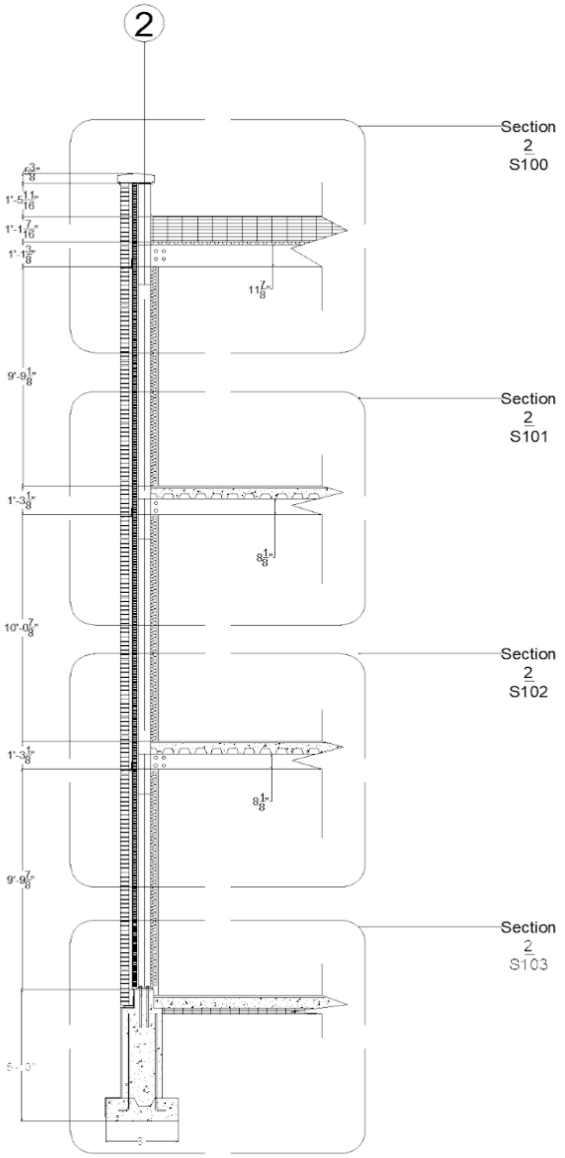
Longitudinal Sections

1/S101



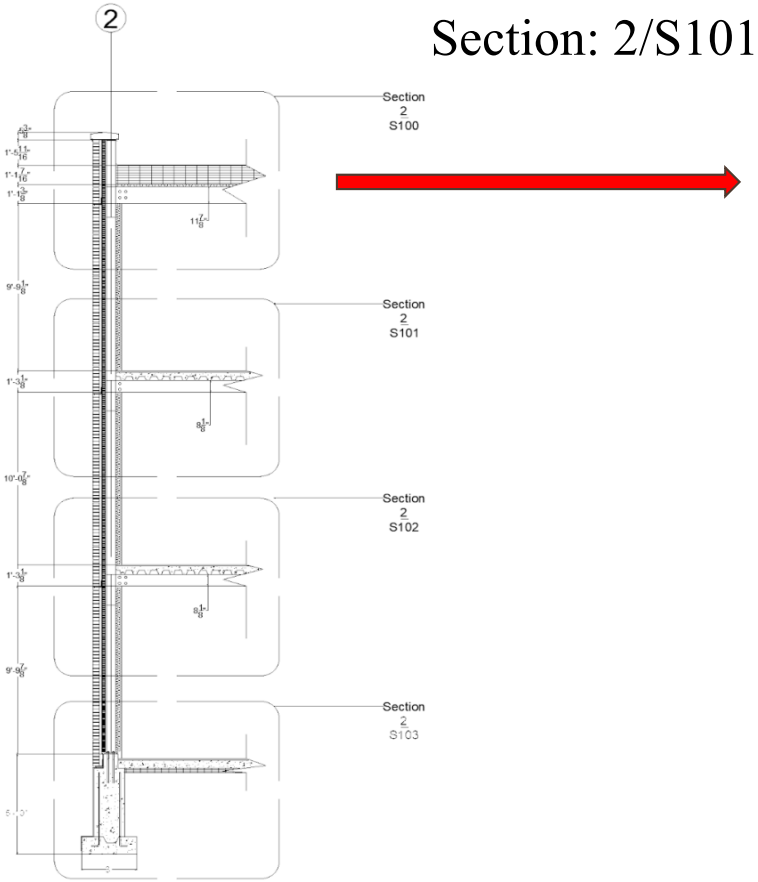
Wall Section Details

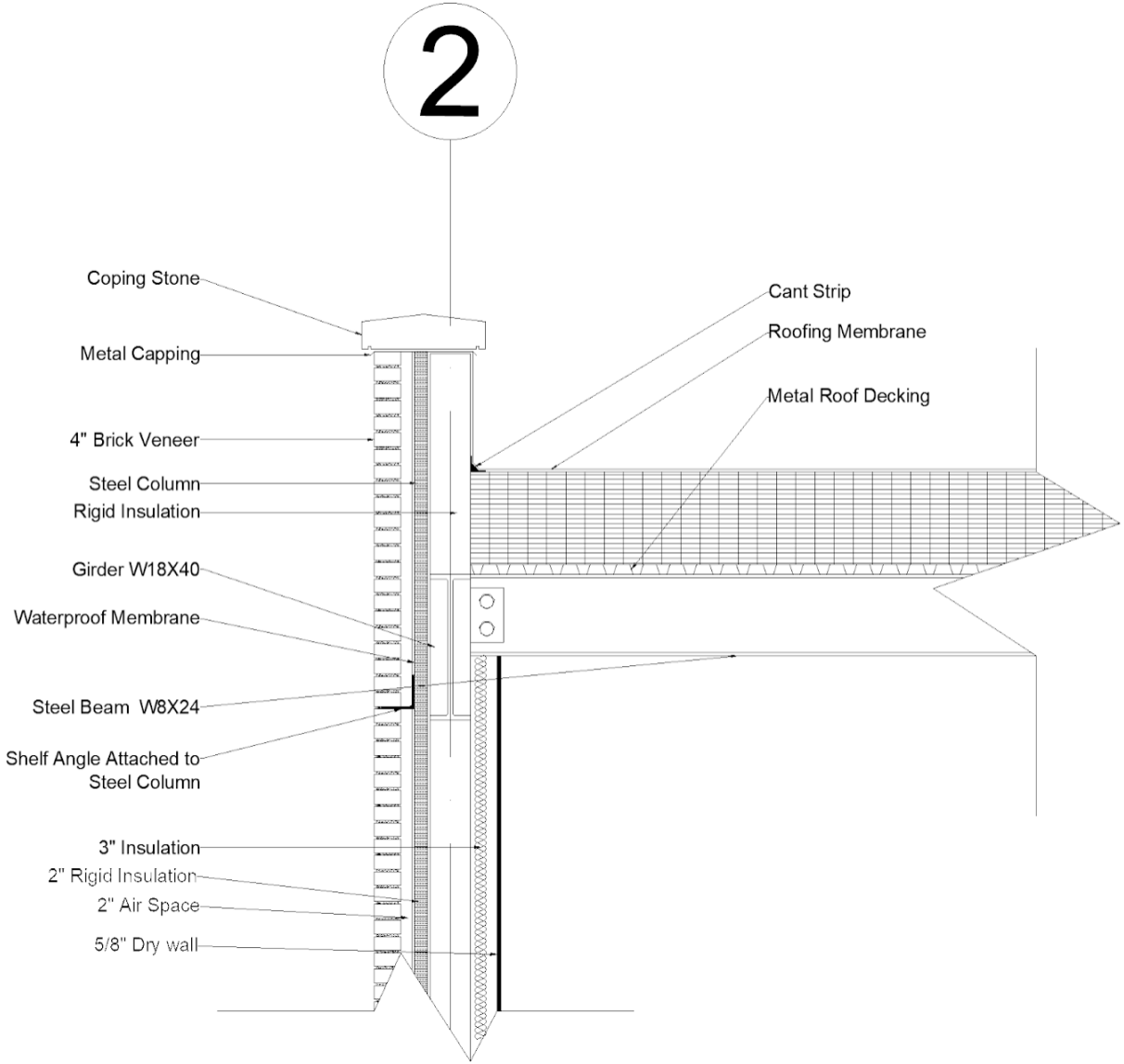
Section: 2/S100



Wall Section Details

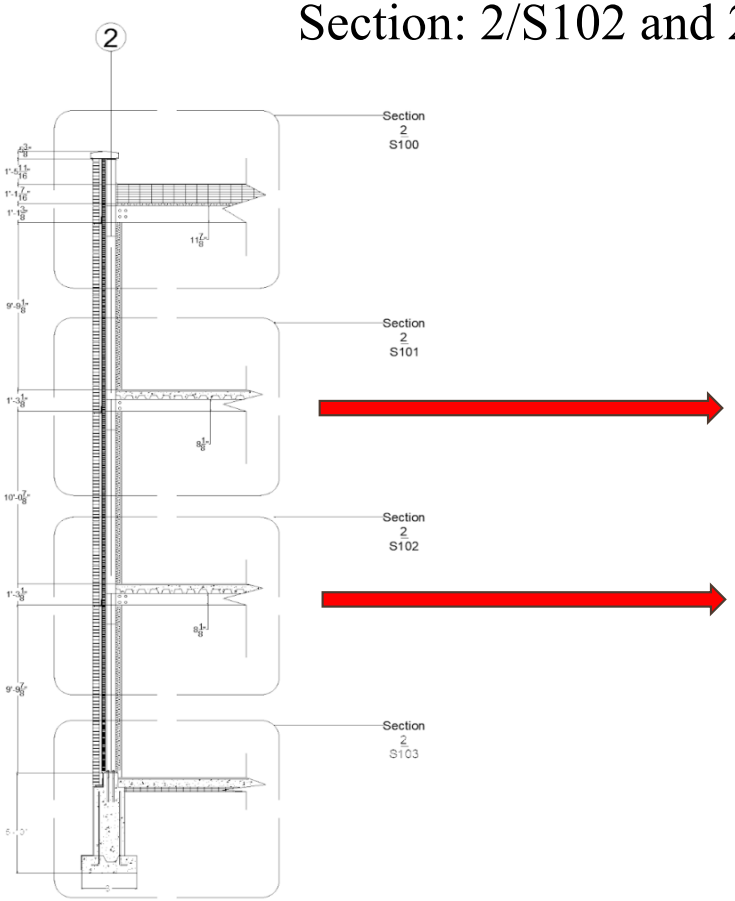
Section: 2/S101

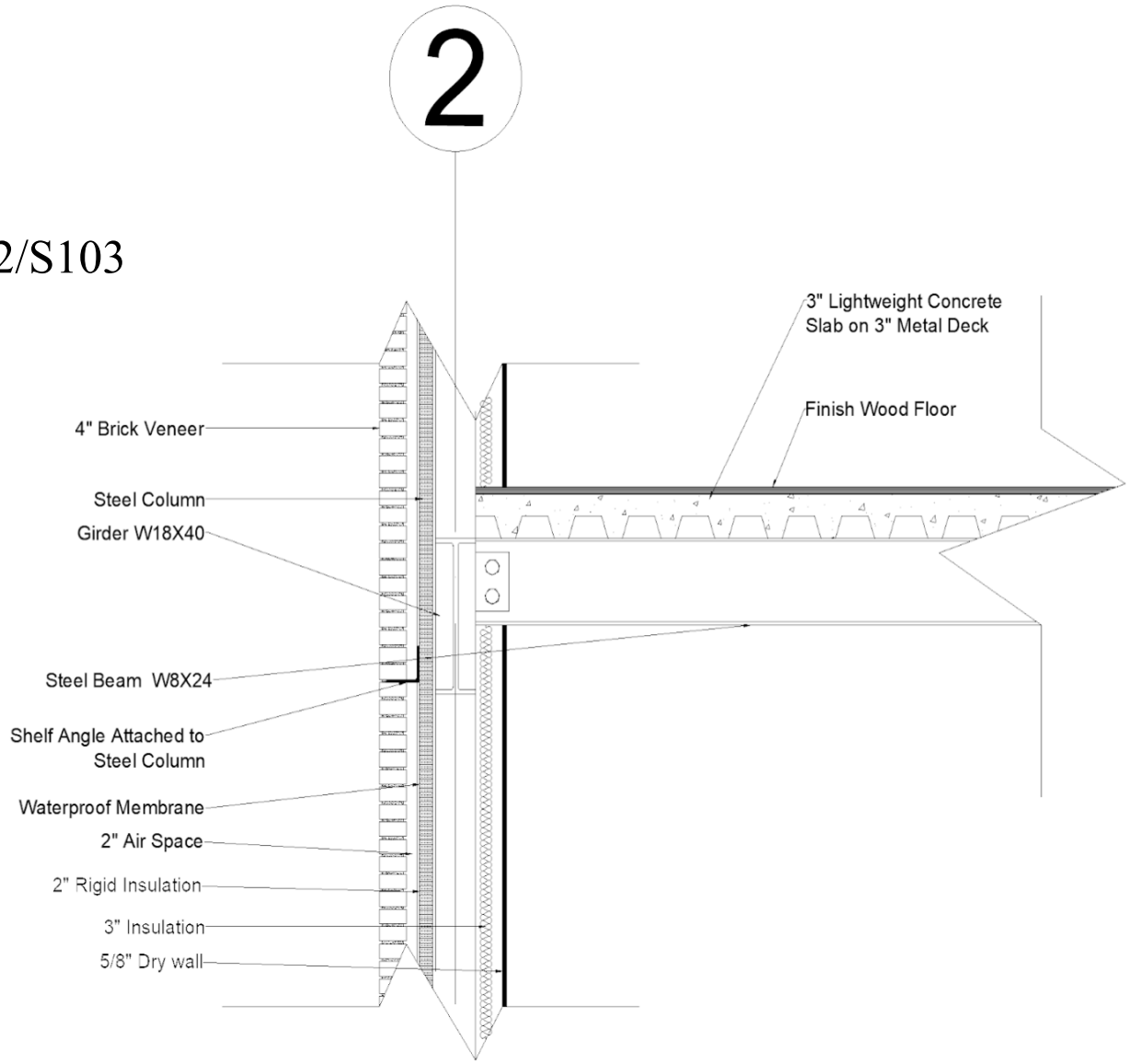




Wall Section Details

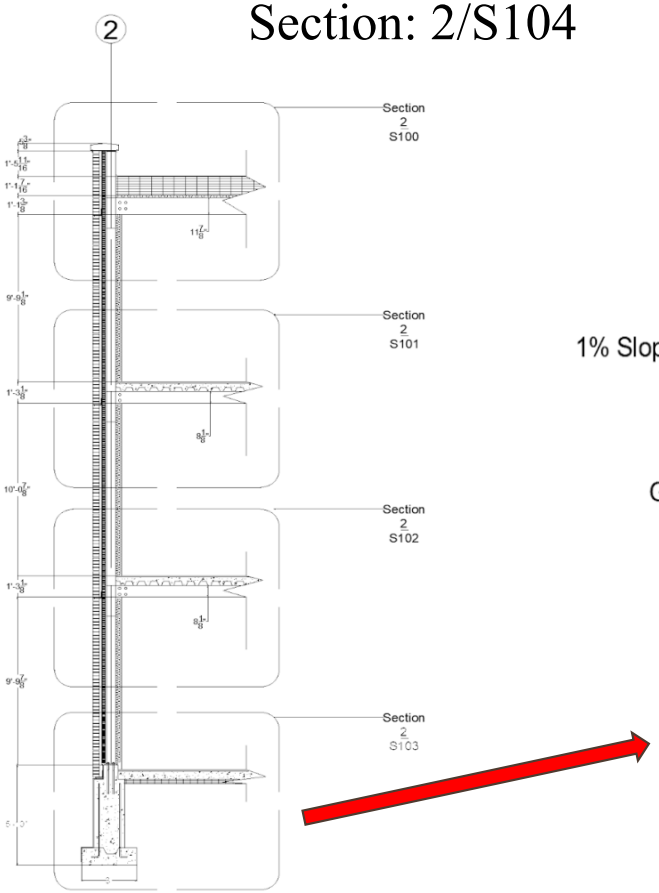
Section: 2/S102 and 2/S103

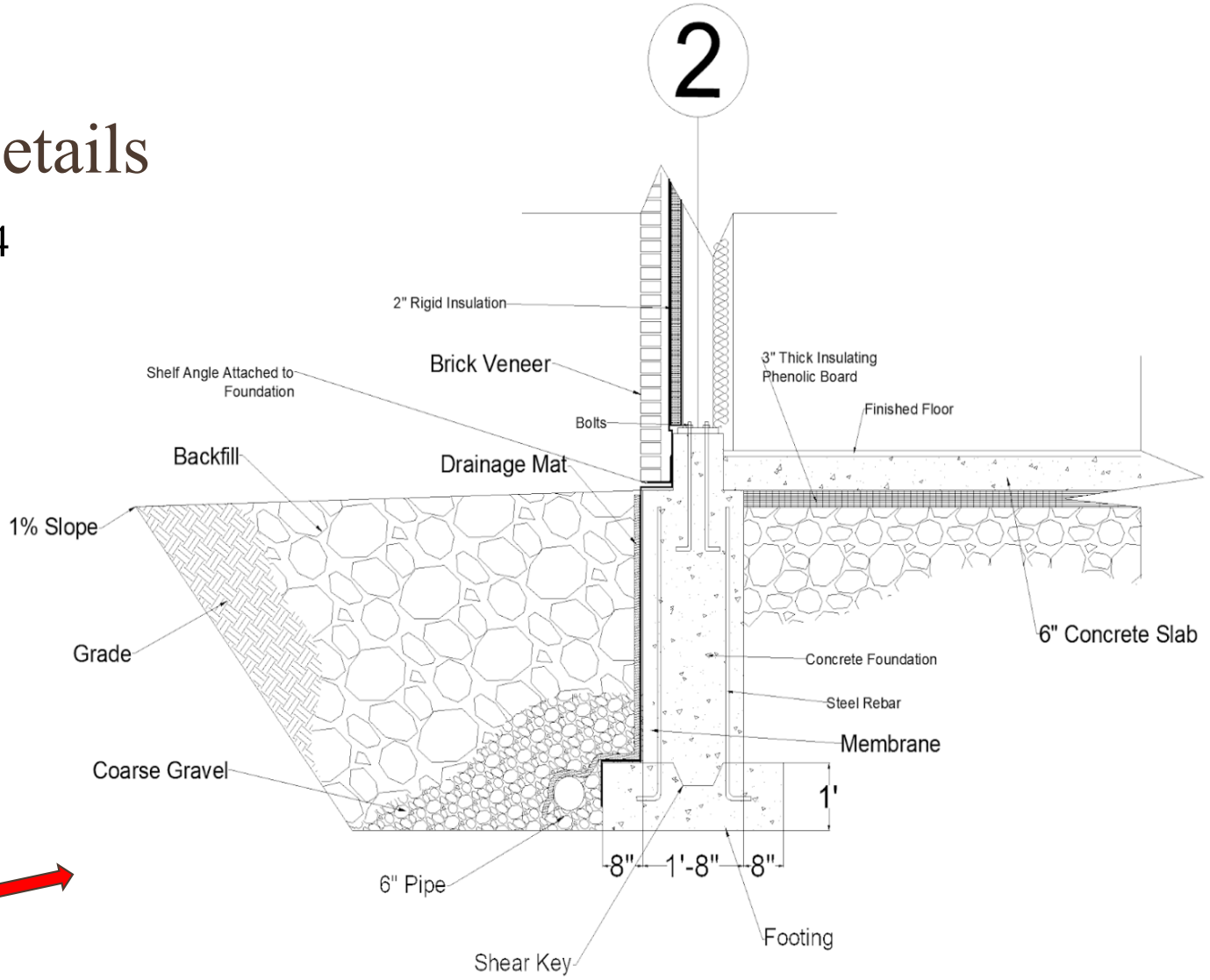




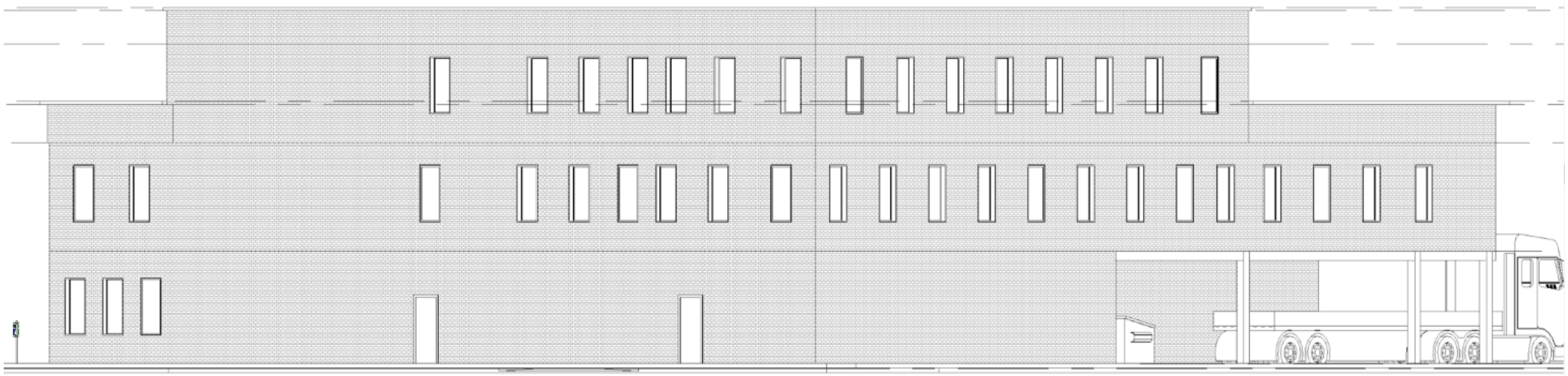
Wall Section Details

Section: 2/S104

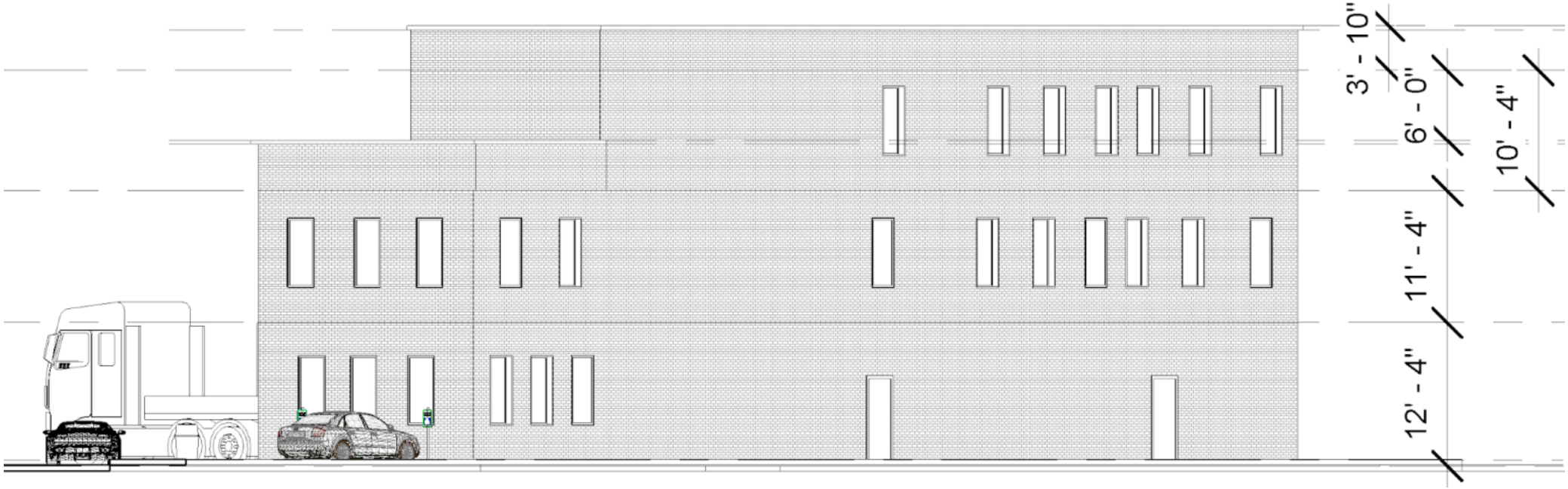




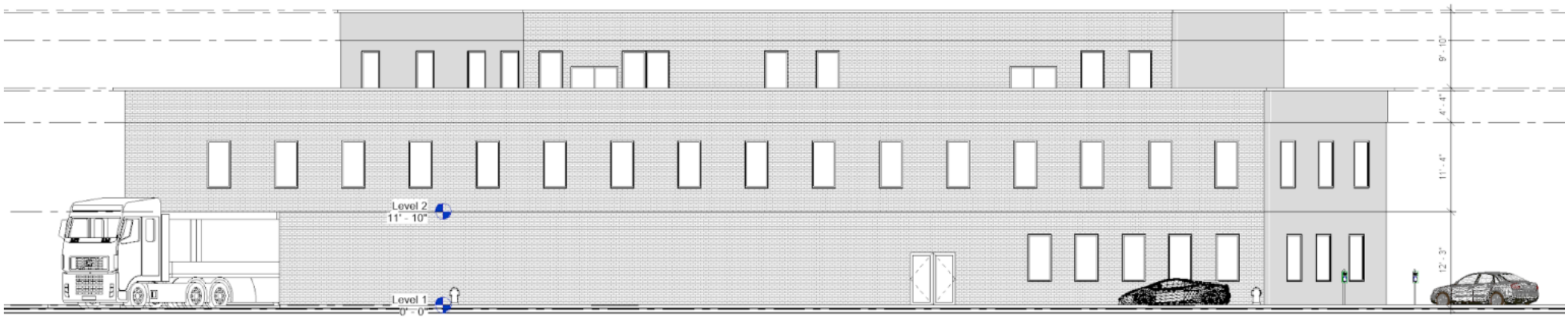
North Elevation



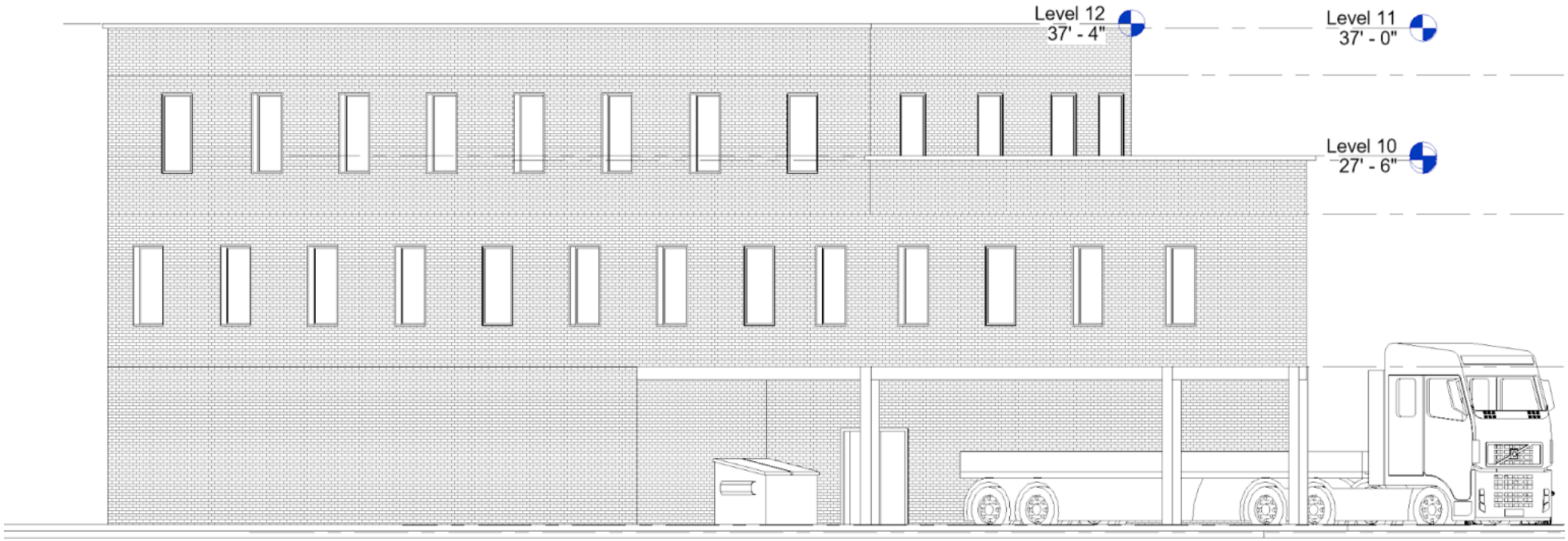
East Elevation



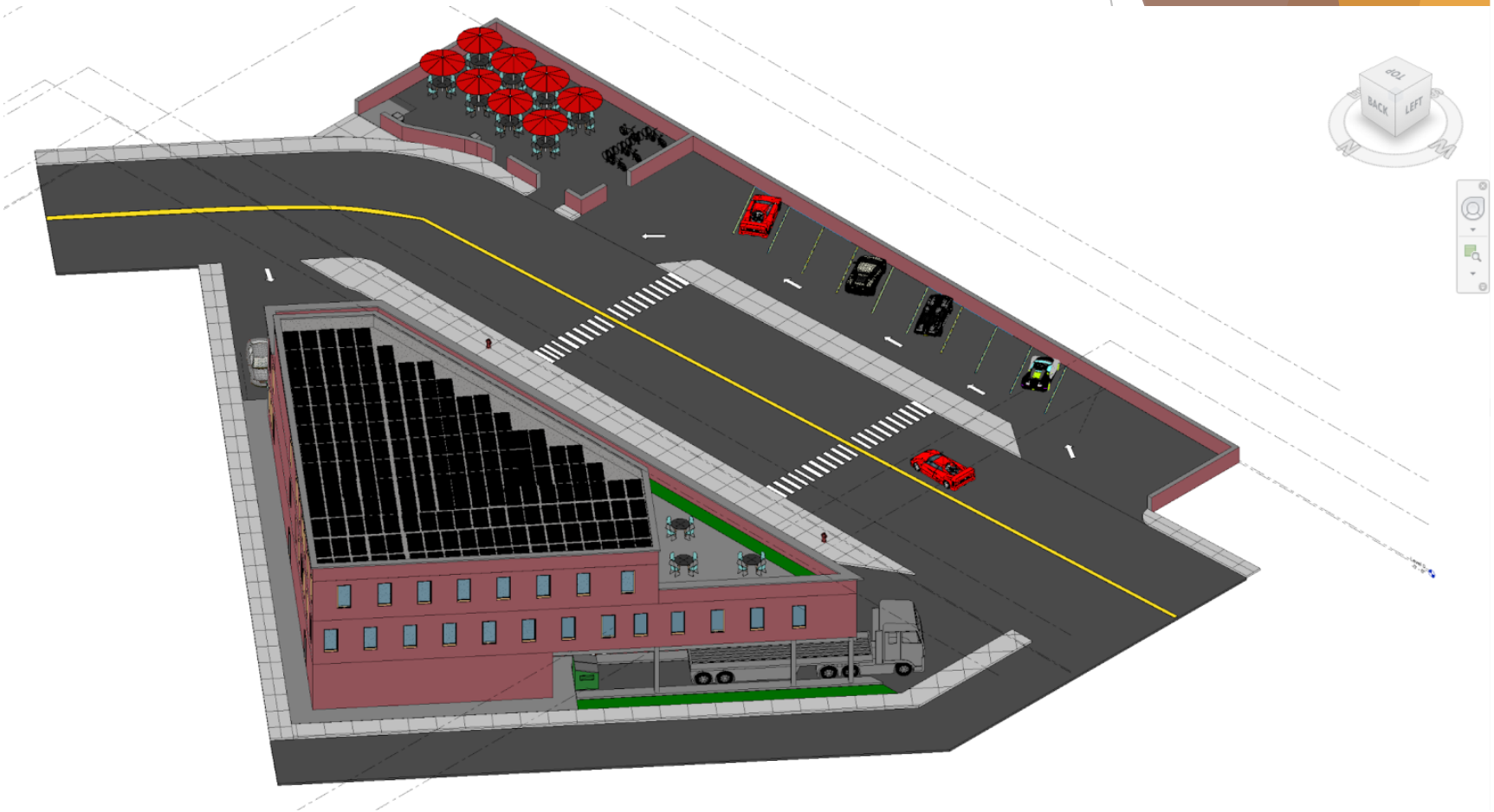
South Elevation



West Elevation



3D Model



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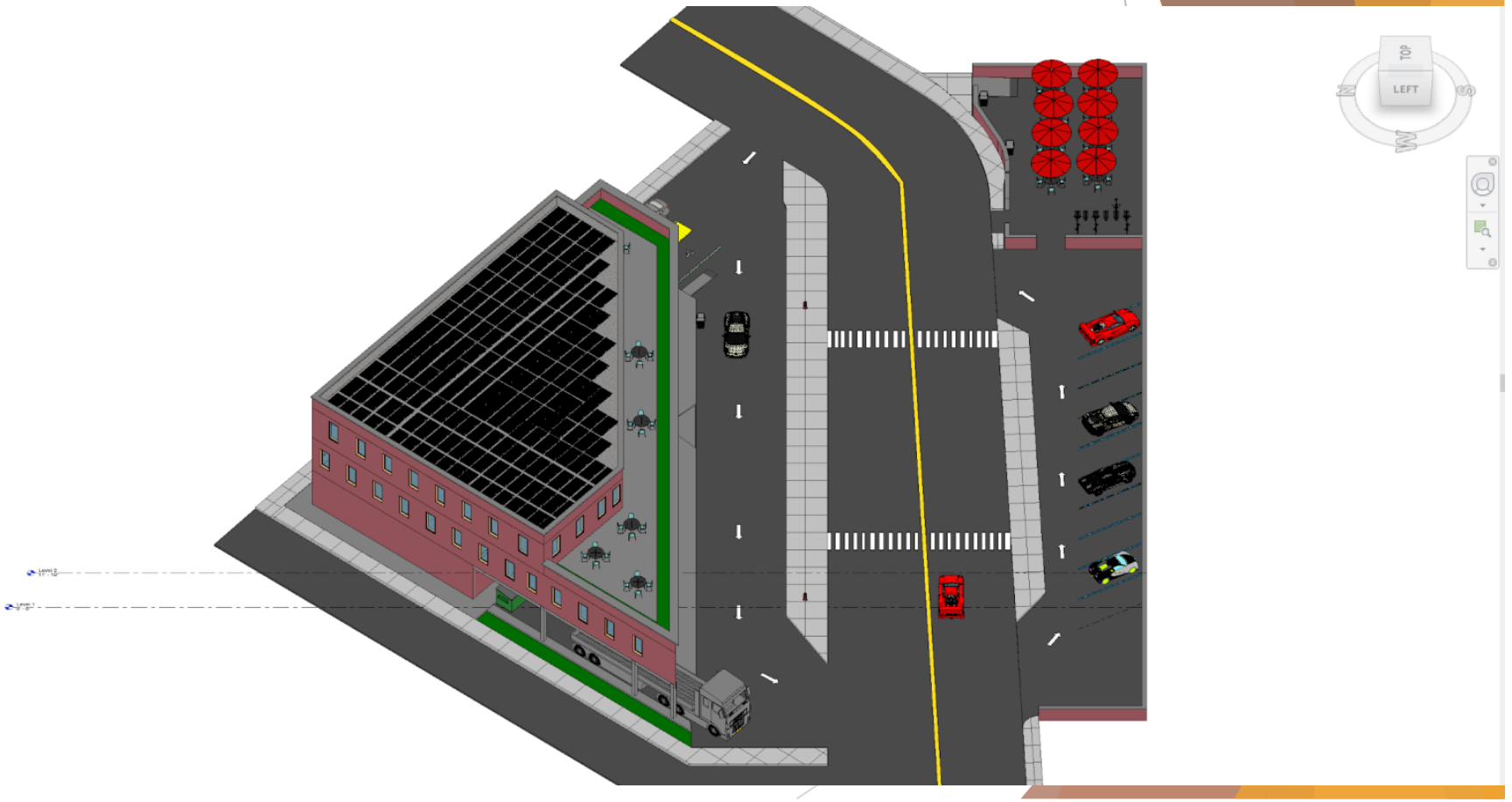

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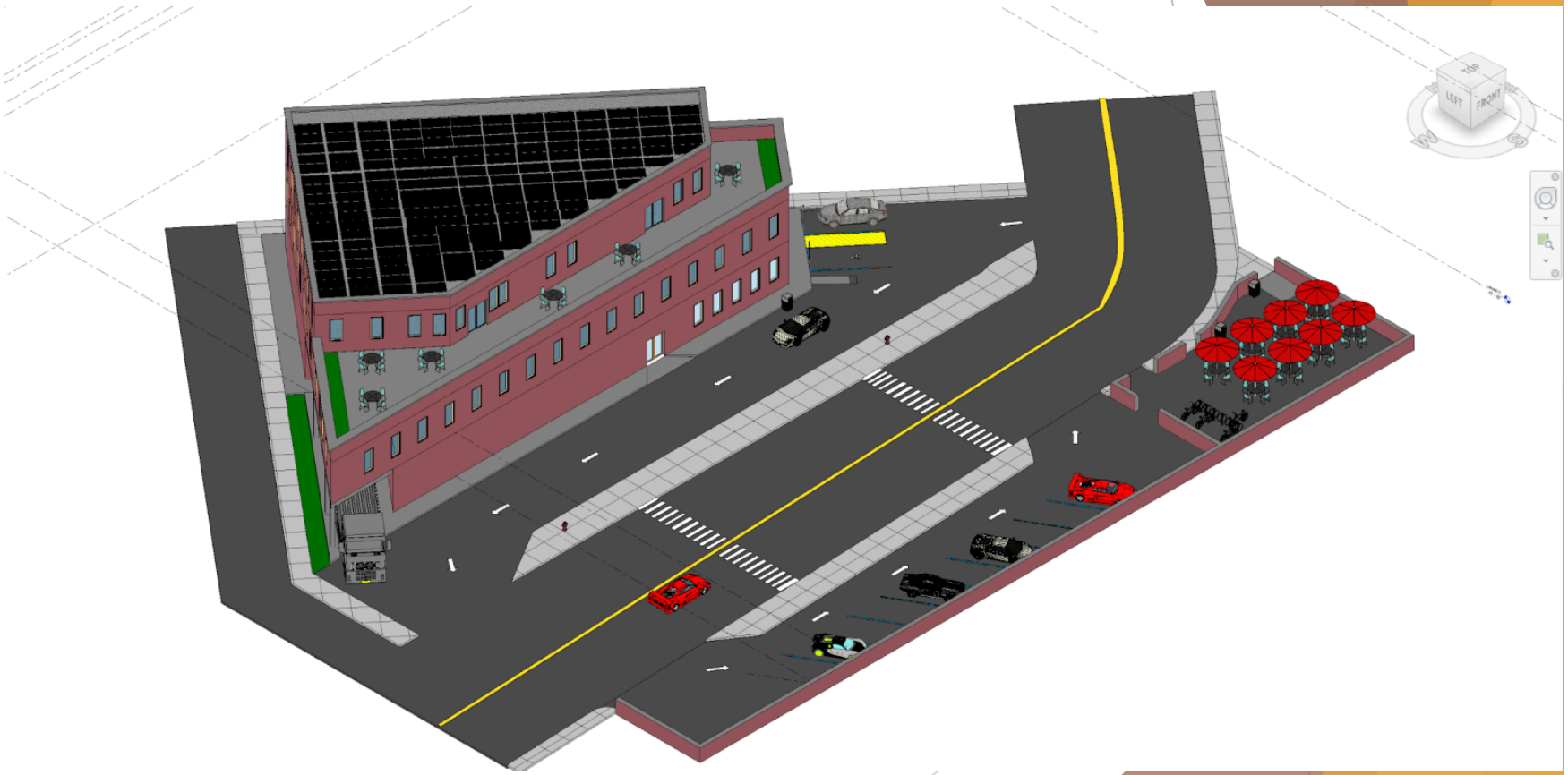

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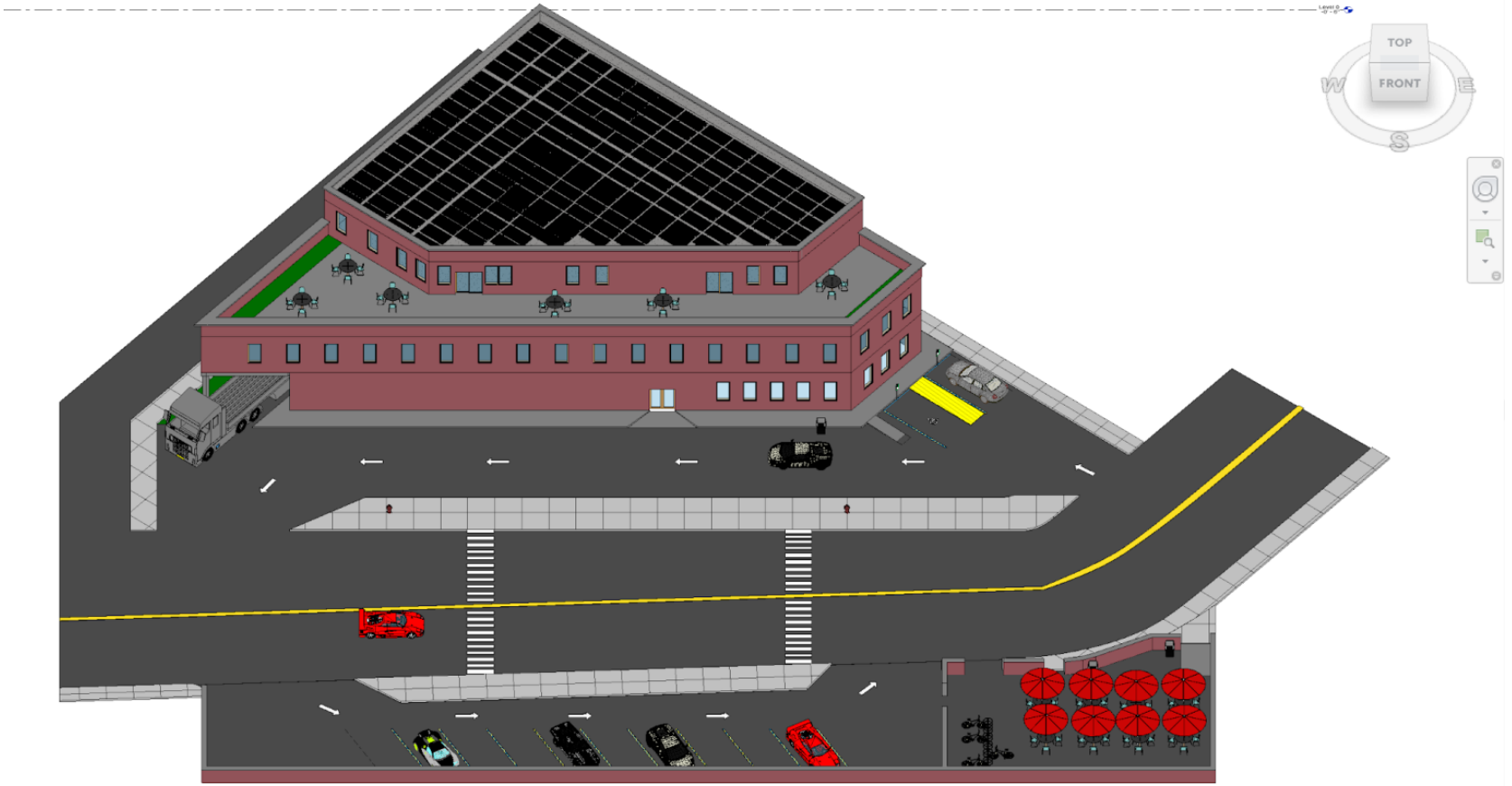

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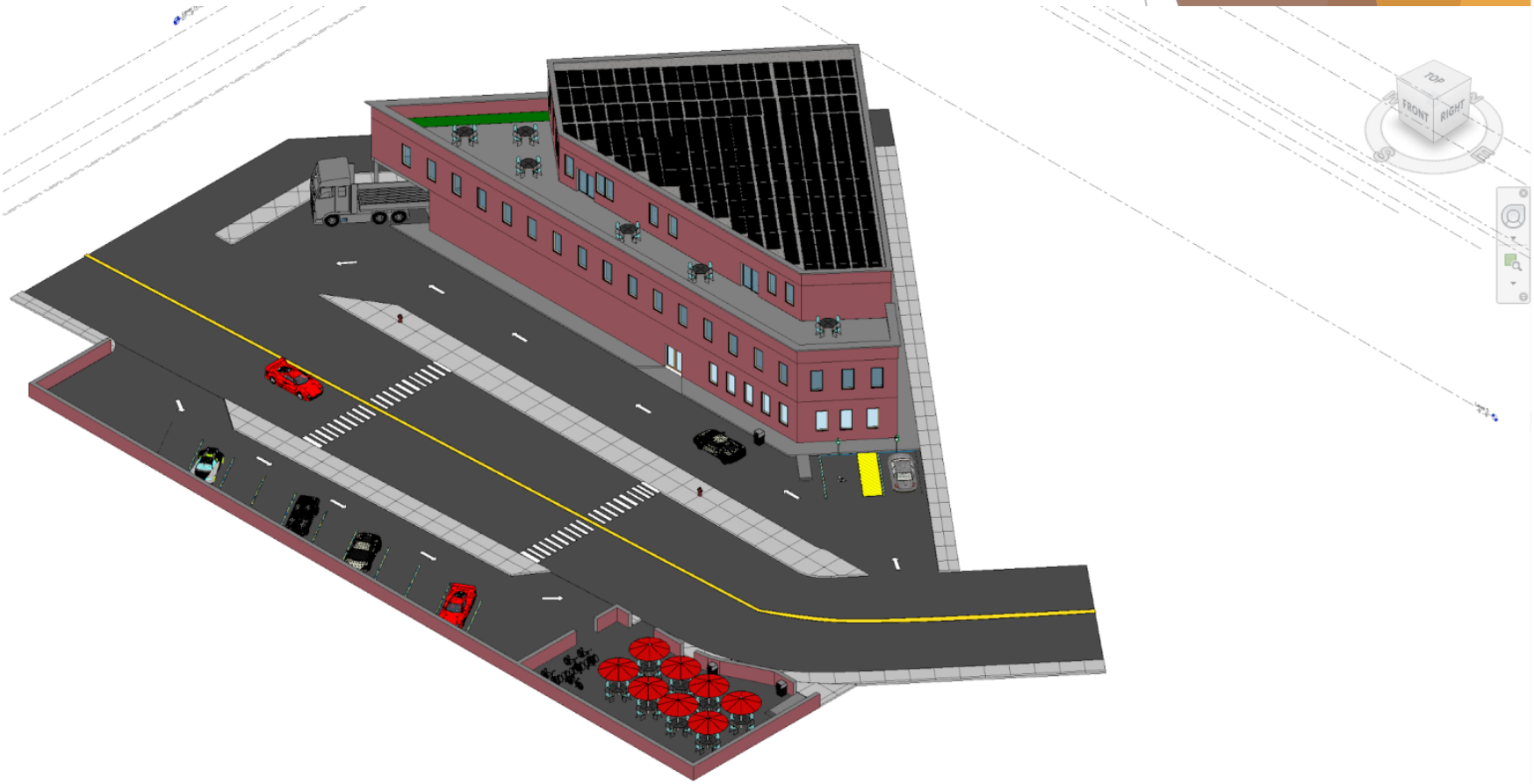

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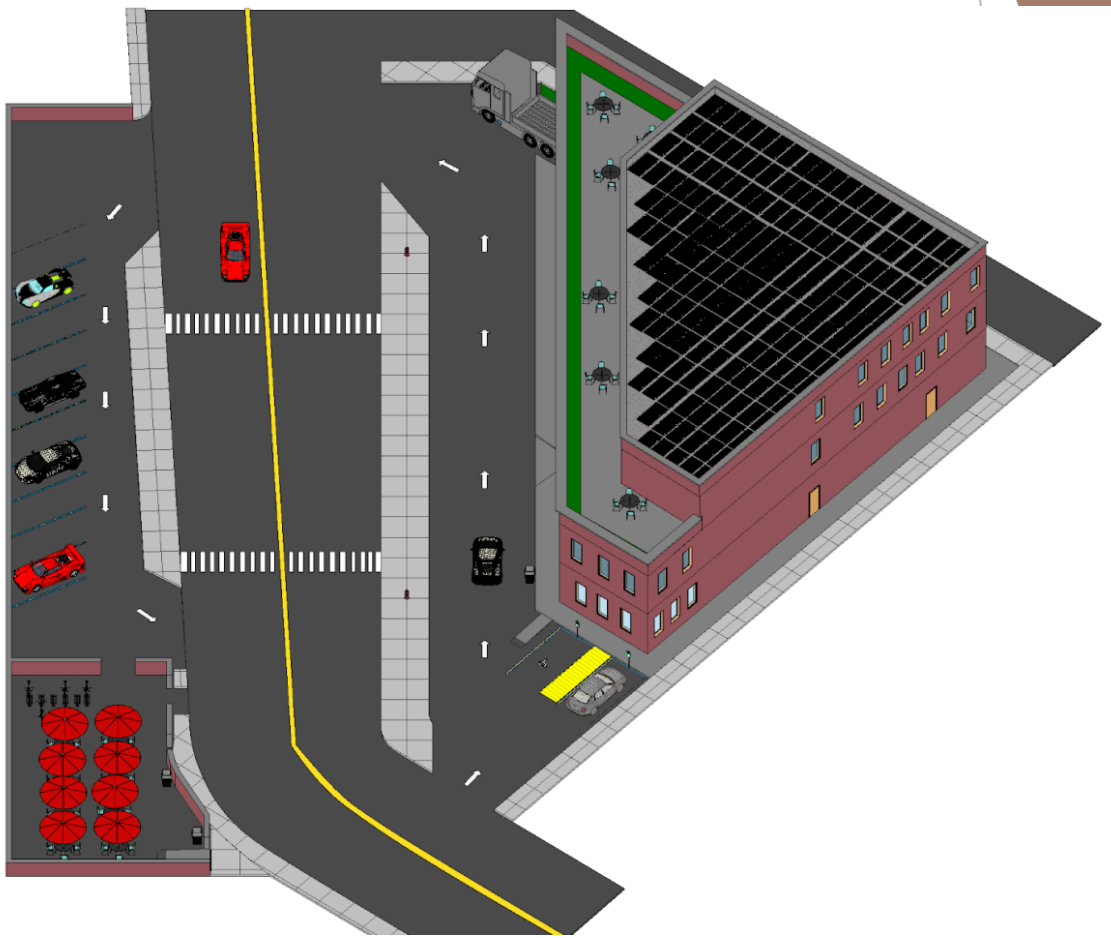

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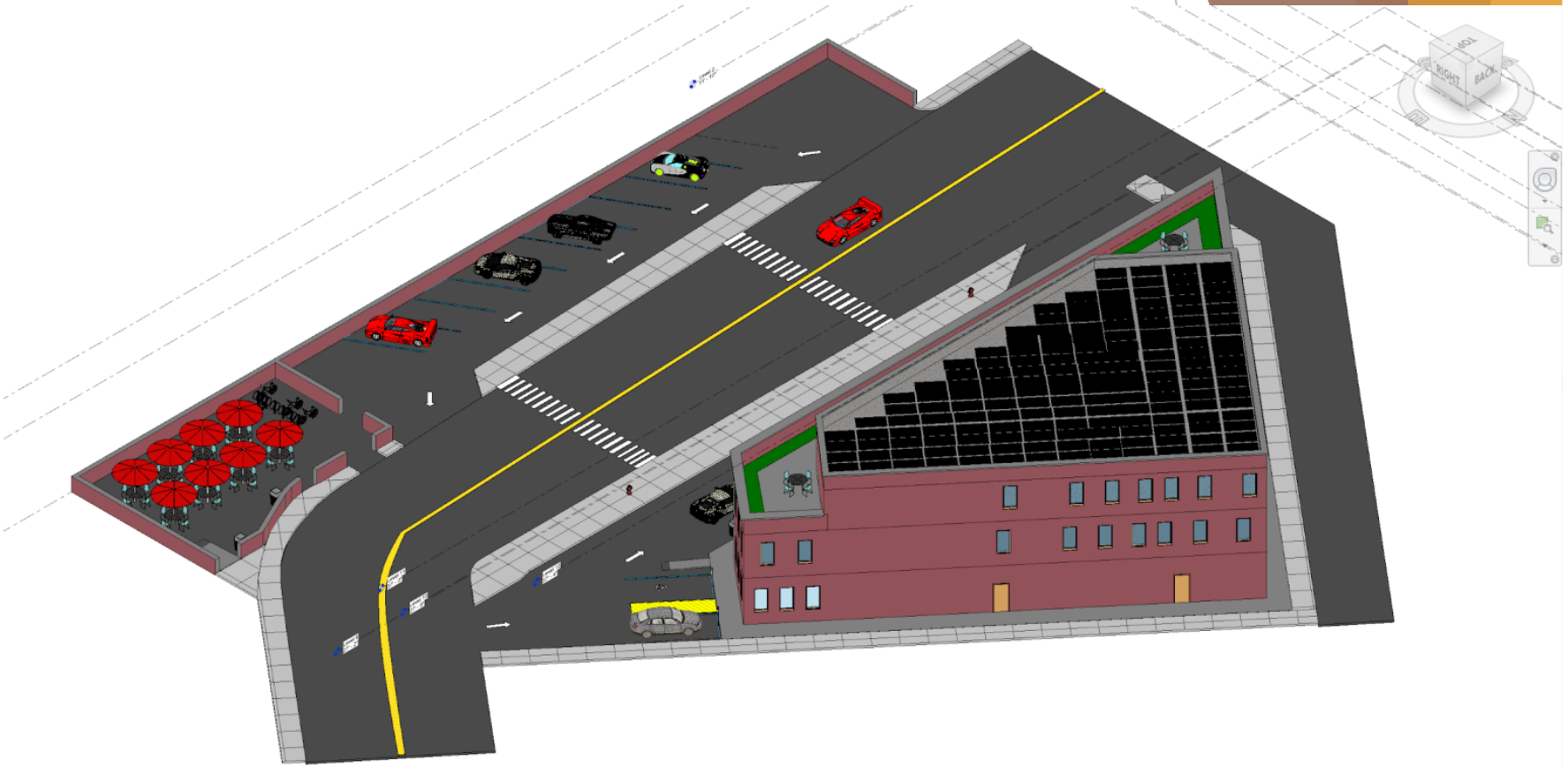

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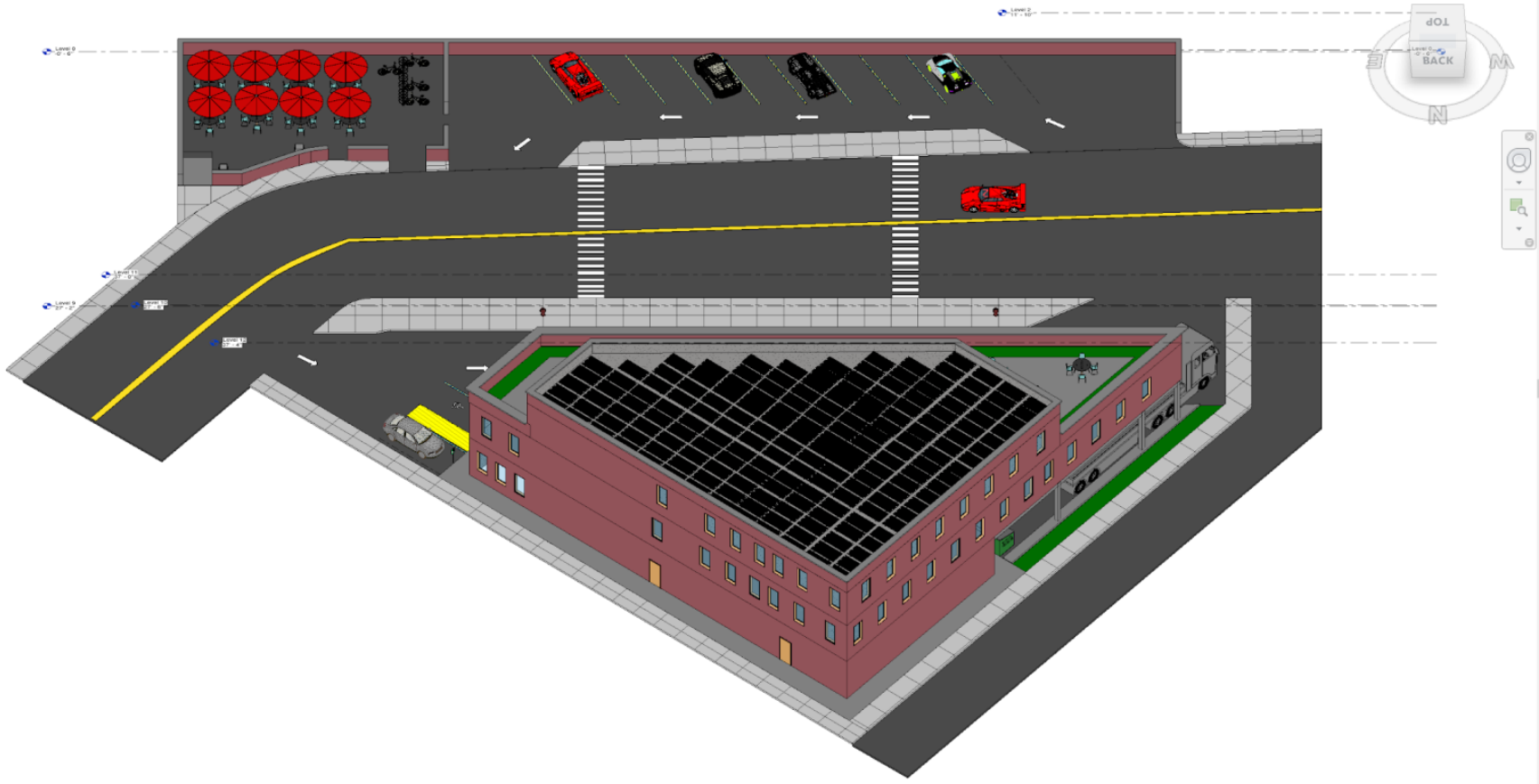

Questions