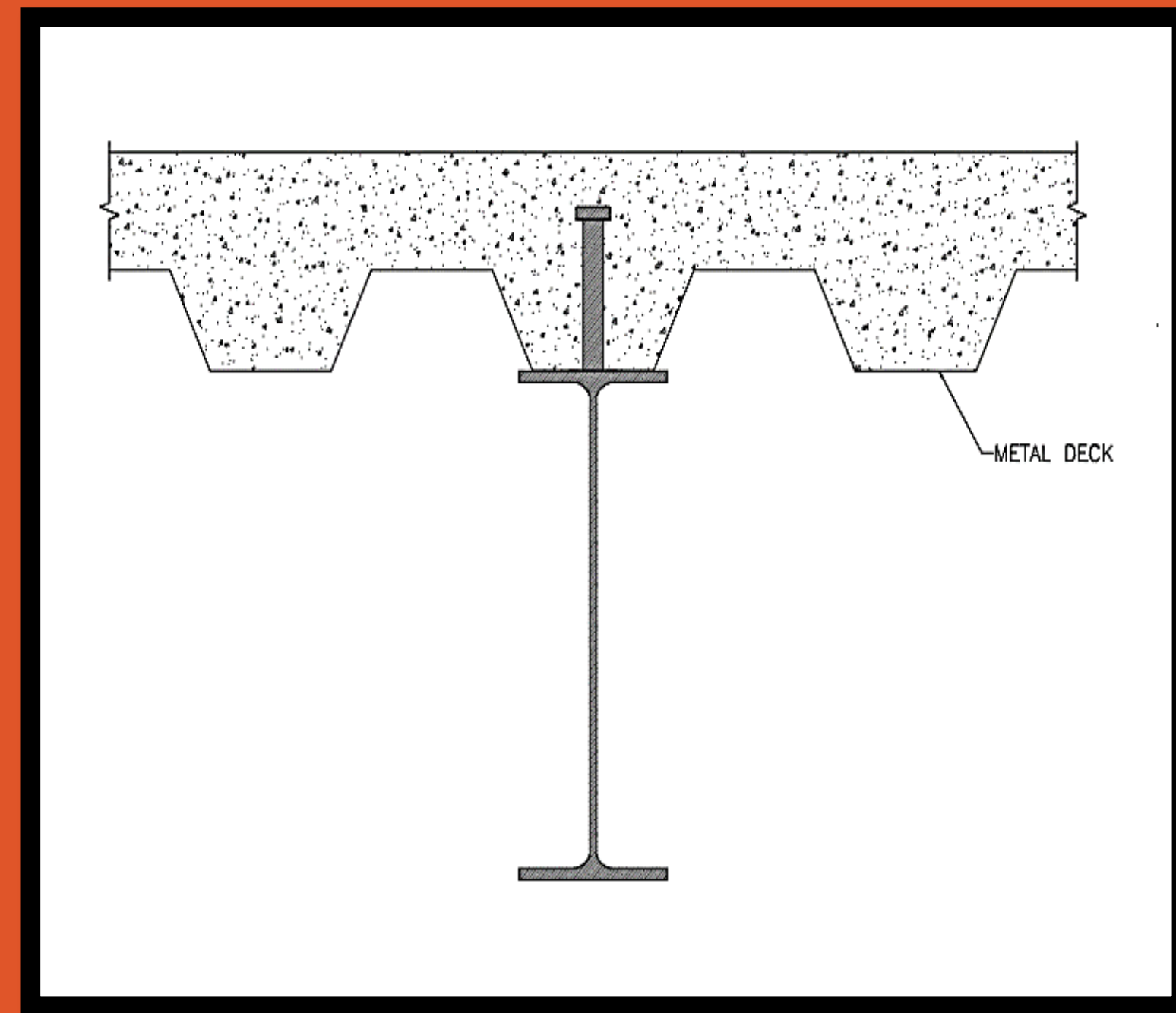


STRUCTURAL ENGINEERING
Concrete Composite Deck:

- 3" Deck Corrugations
- 3 1/2" Concrete Slab Topper
- 3/4" Dia. Shear Studs

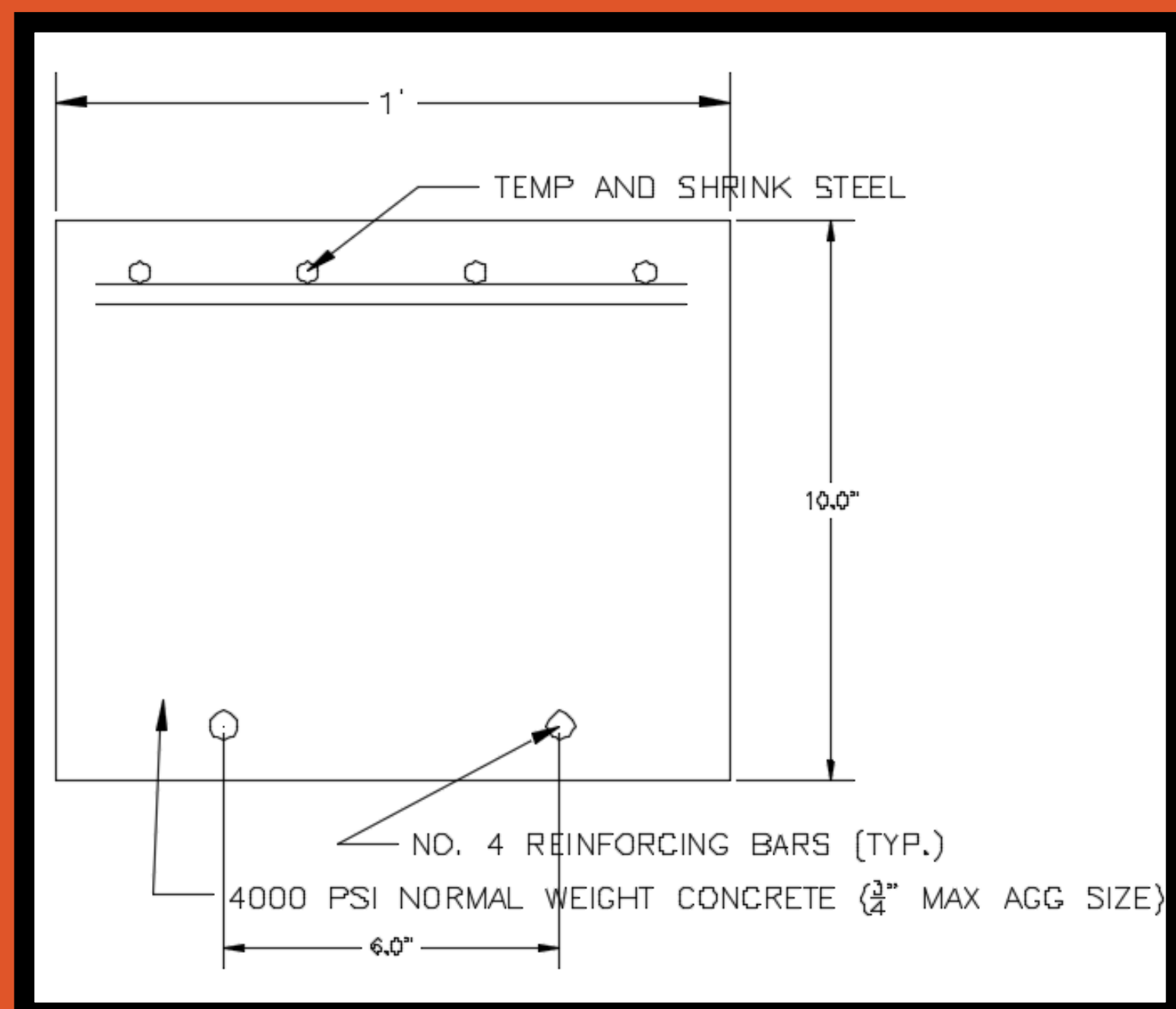


Typical Composite Framing Design

Reinforced Concrete:

Concrete's greater stiffness, compared to steel, was beneficial for the first-floor framing system.

- Several imaging machines sensitive to vibration and deflection.
- These machines, coupled with the floor's intended use led to high design loads.
- Shallower sections for vehicle clearance in the parking garage underneath.



Typical First-Floor Slab

VETERINARY HOSPITAL

Portland, Oregon

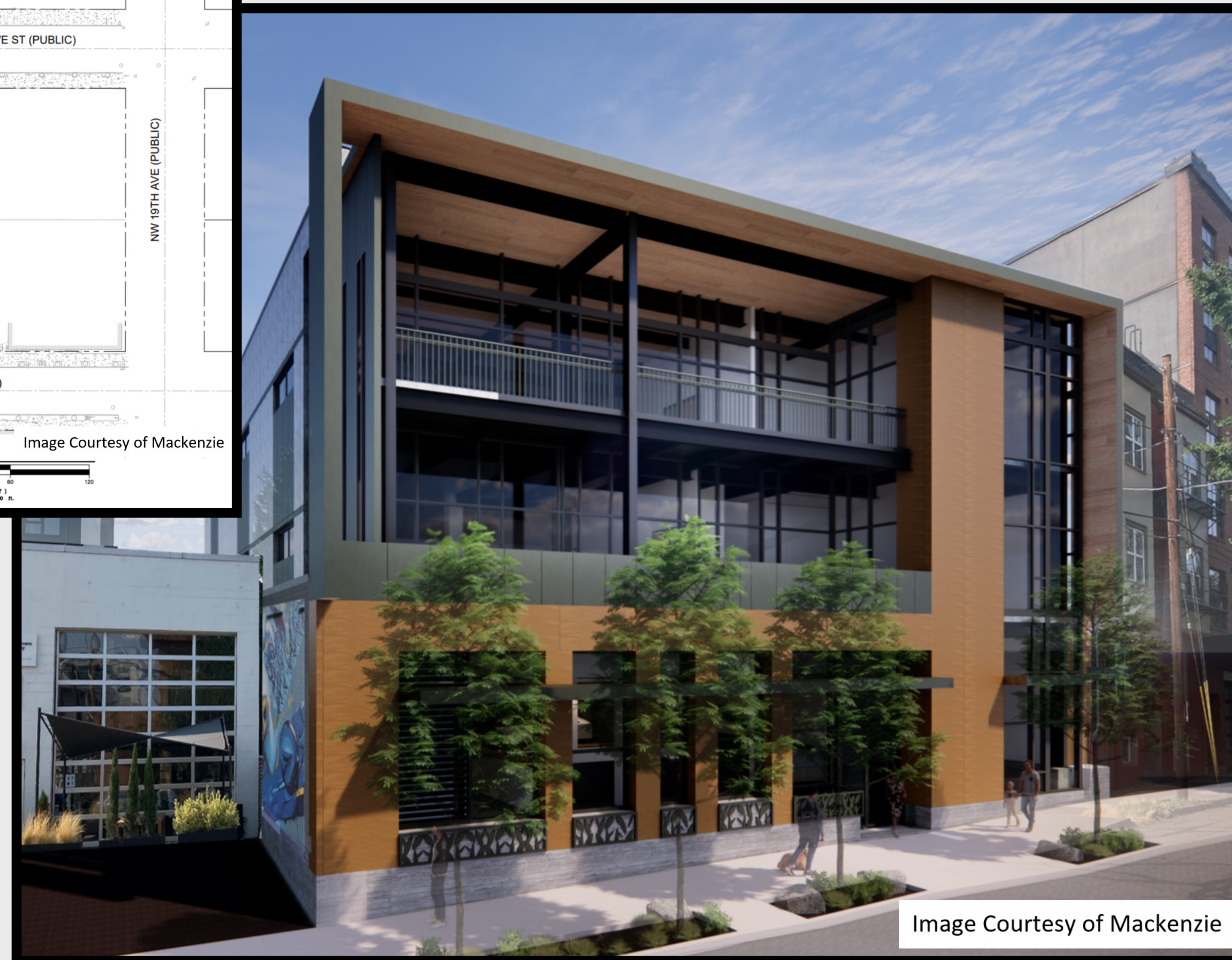
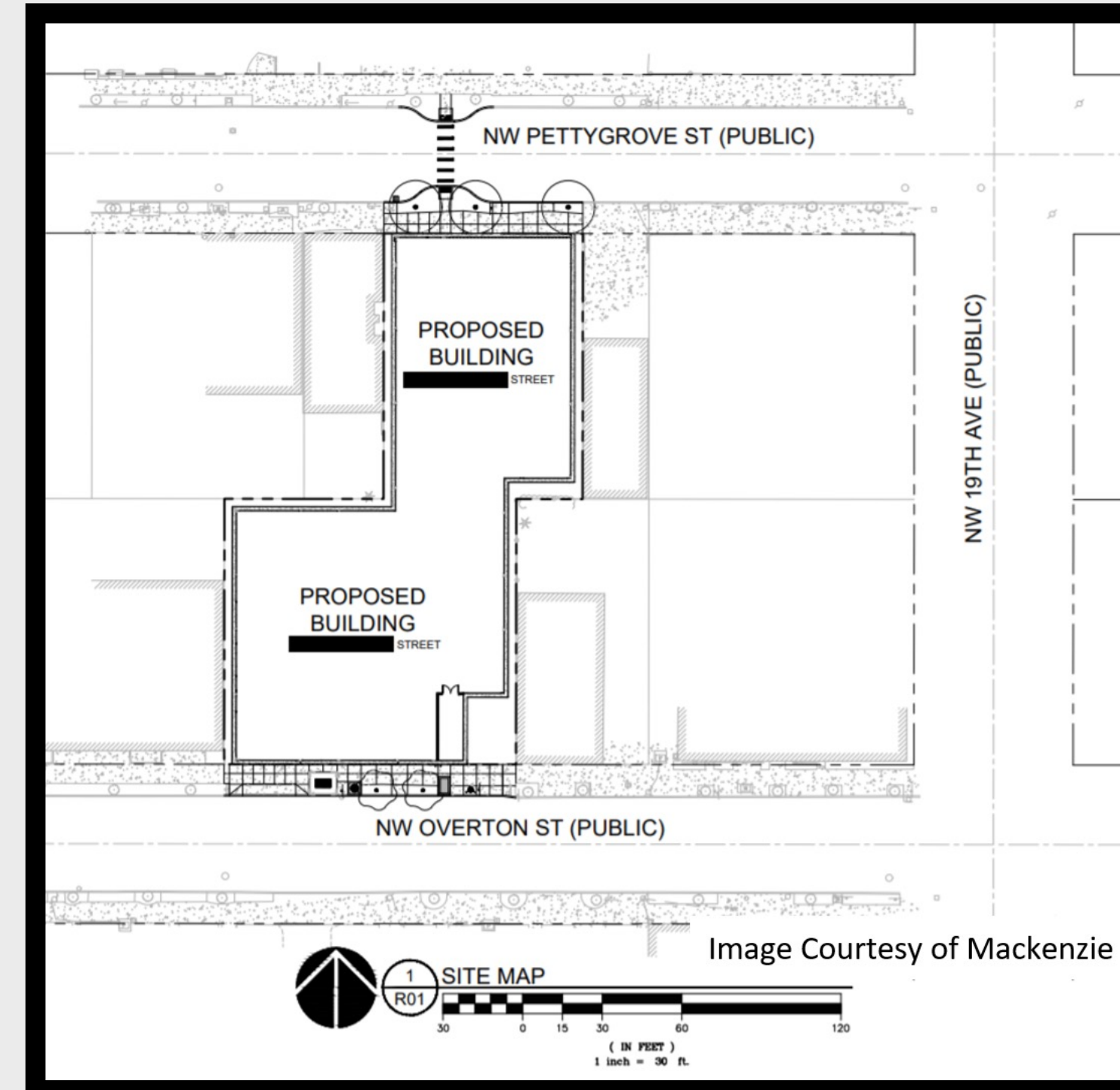
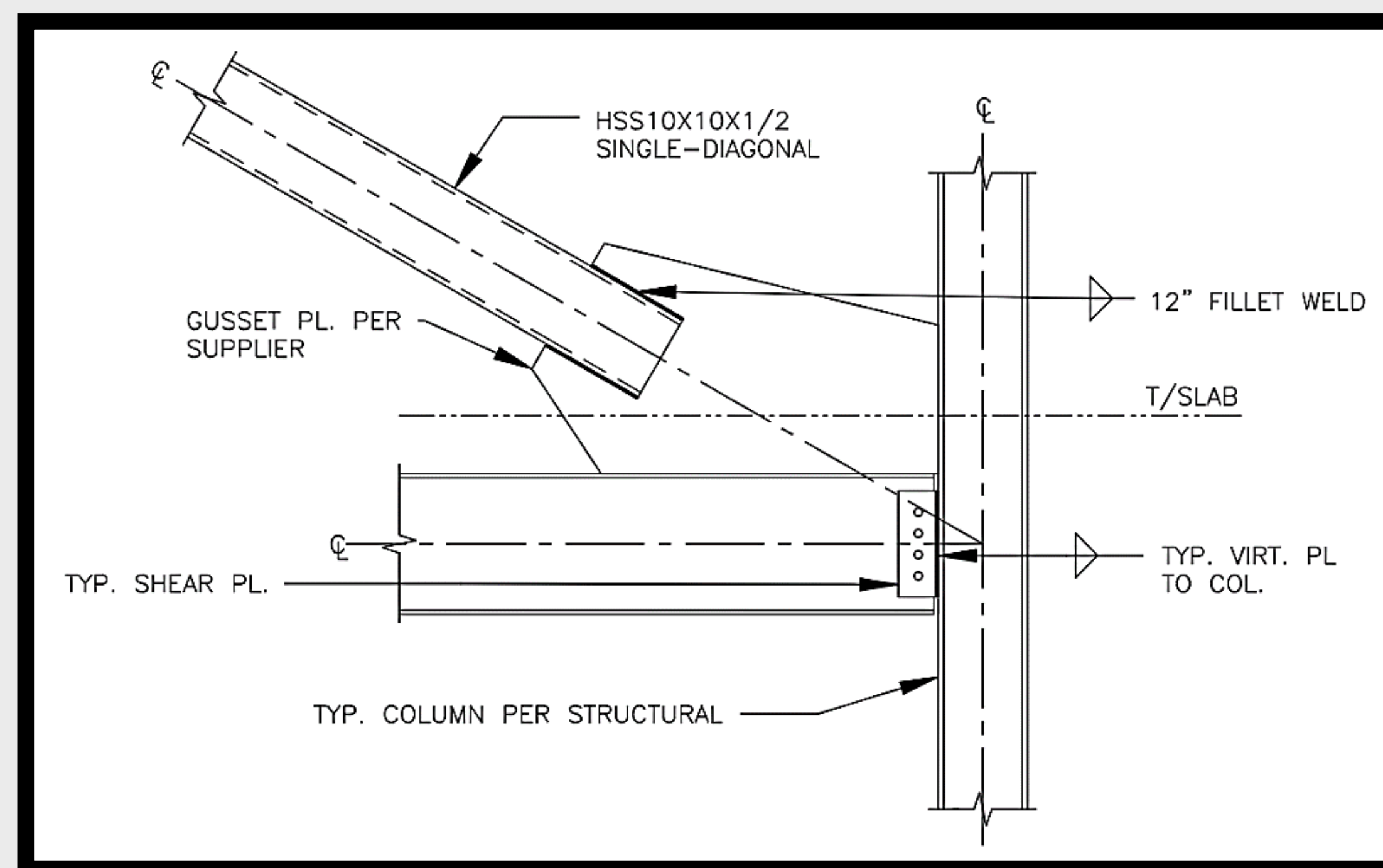


Image Courtesy of Mackenzie

STRUCTURAL ENGINEERING

Lateral Force Resisting System:

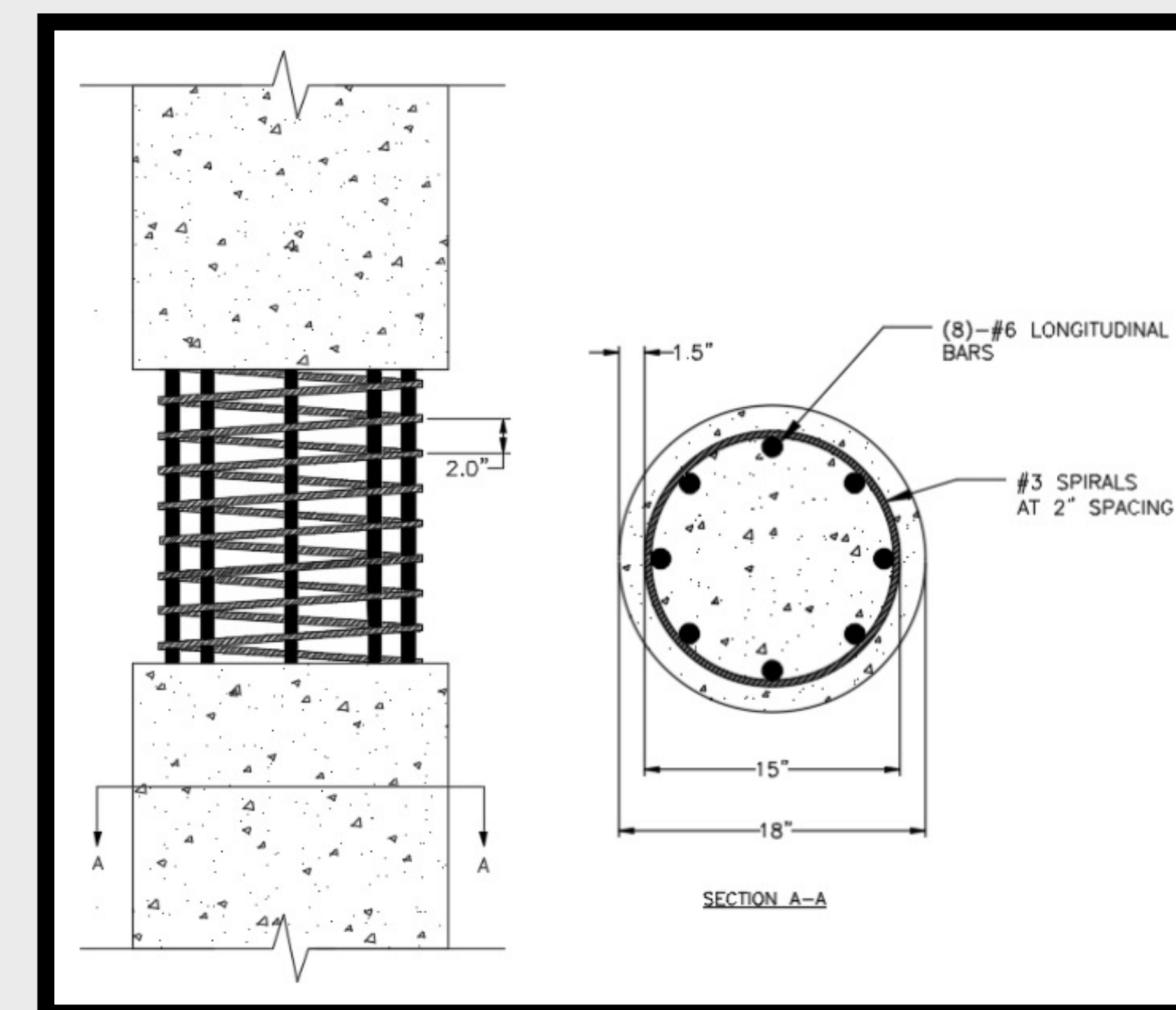


Single-Diagonal Brace (First Floor)

DESIGN:

- High seismic region
- Steel Braced Frames
- HSS (hollow structural sections) A500 steel bracing members
- Chevron and single-diagonal configurations

Lower Level Column Design:

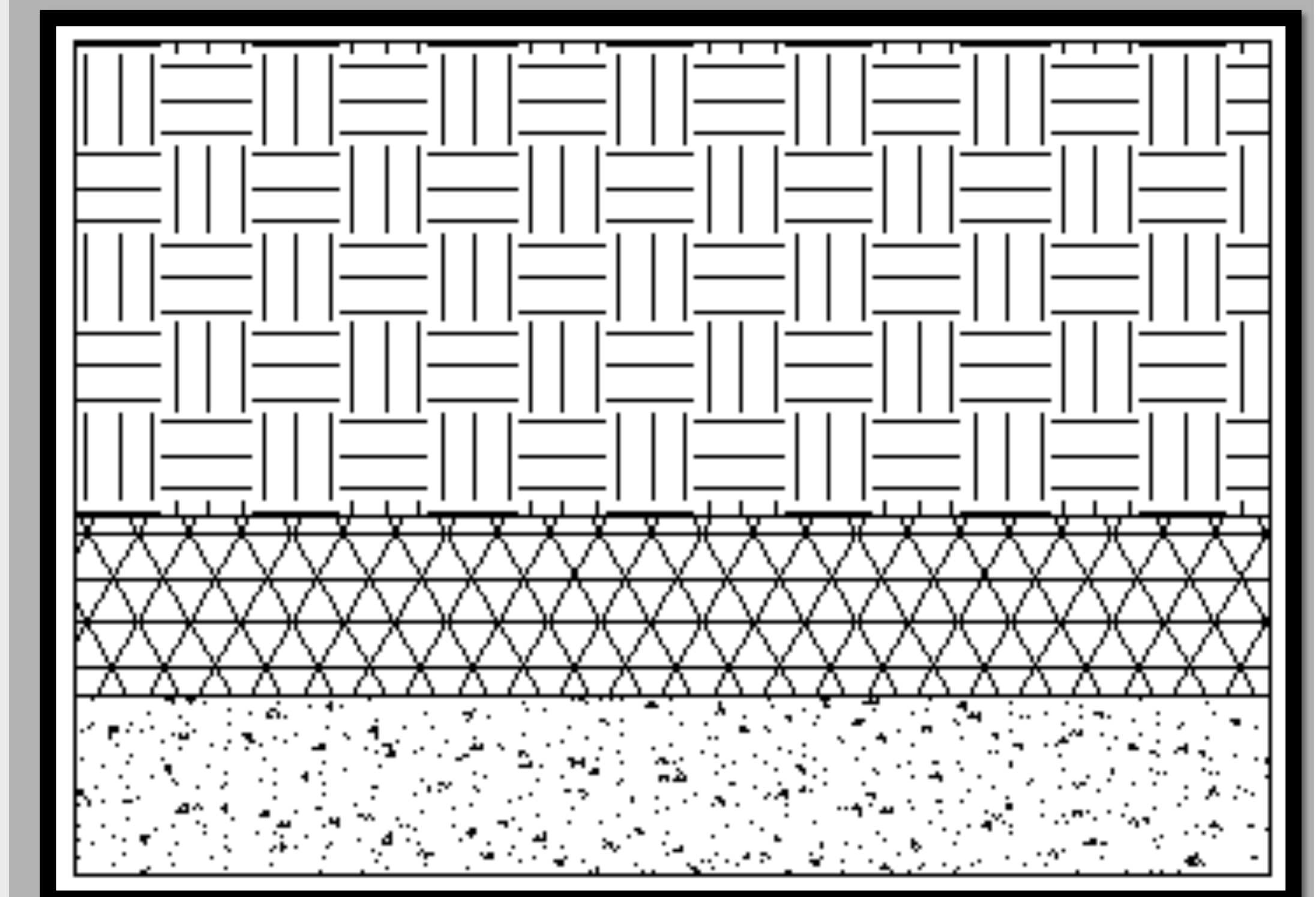


Reinforced Concrete Column

DESIGN:

- Circular Column with longitudinal and spiral reinforcement
- Parking area clearance

WATER RESOURCES
Green Eco-Roof:



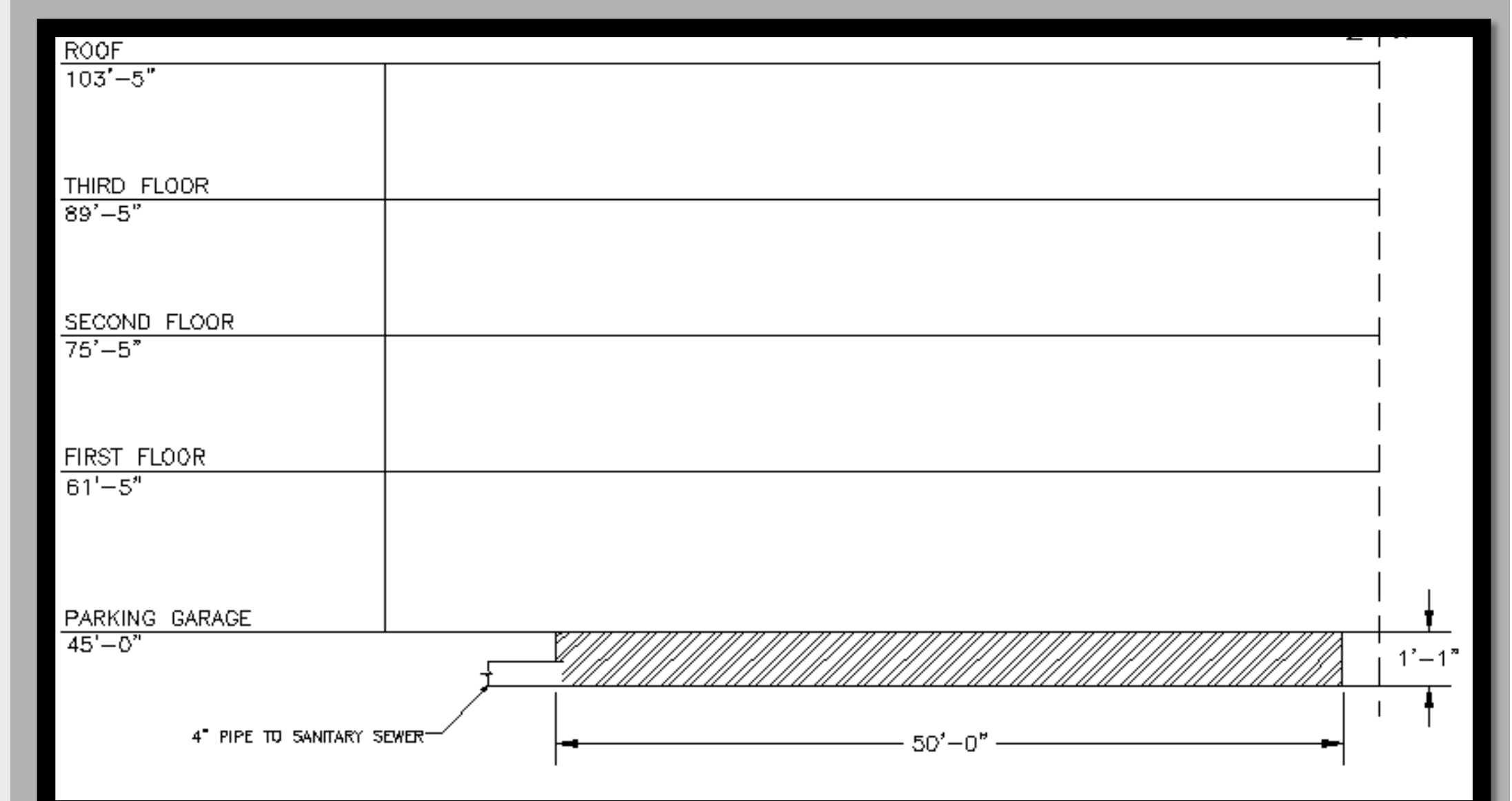
Side View of the Layers in the green roof

- The green roof will filter water through its layers and use some of it for the plant life.
- Grass-like plants will grow in the roof.
- The roof requires low to no maintenance.
- The roof can hold/delay water for use before exiting the roof.

Storm Water Detention Basin:

ADVANTAGES:

- Underground design does not take up foot traffic area.
- Detaining storm water prevents public street flooding
- Low to no maintenance.
- Pre-cast concrete allows for quick installation



Elevation View of Detention Basin