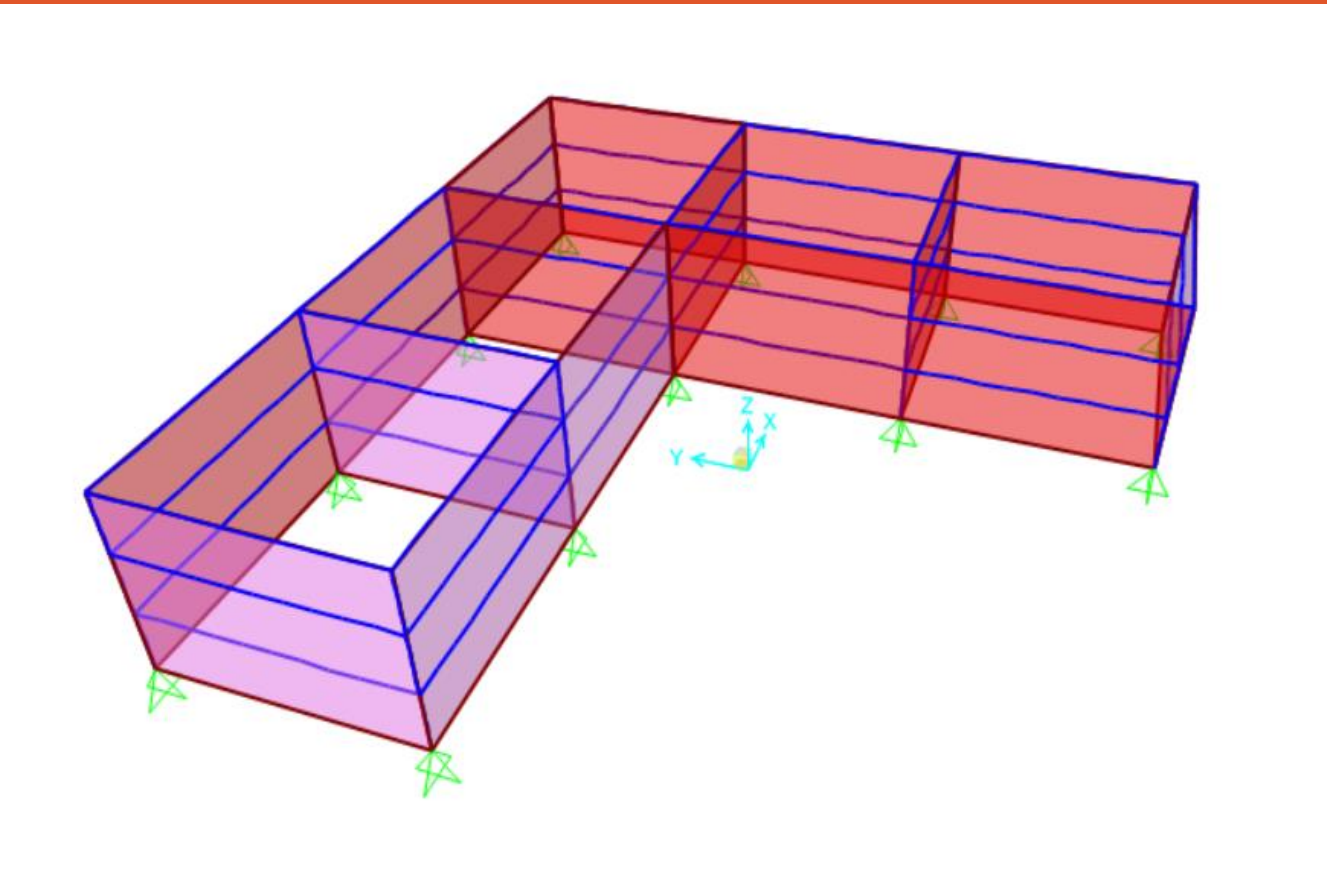


STRUCTURAL DESIGN-  
LATERAL

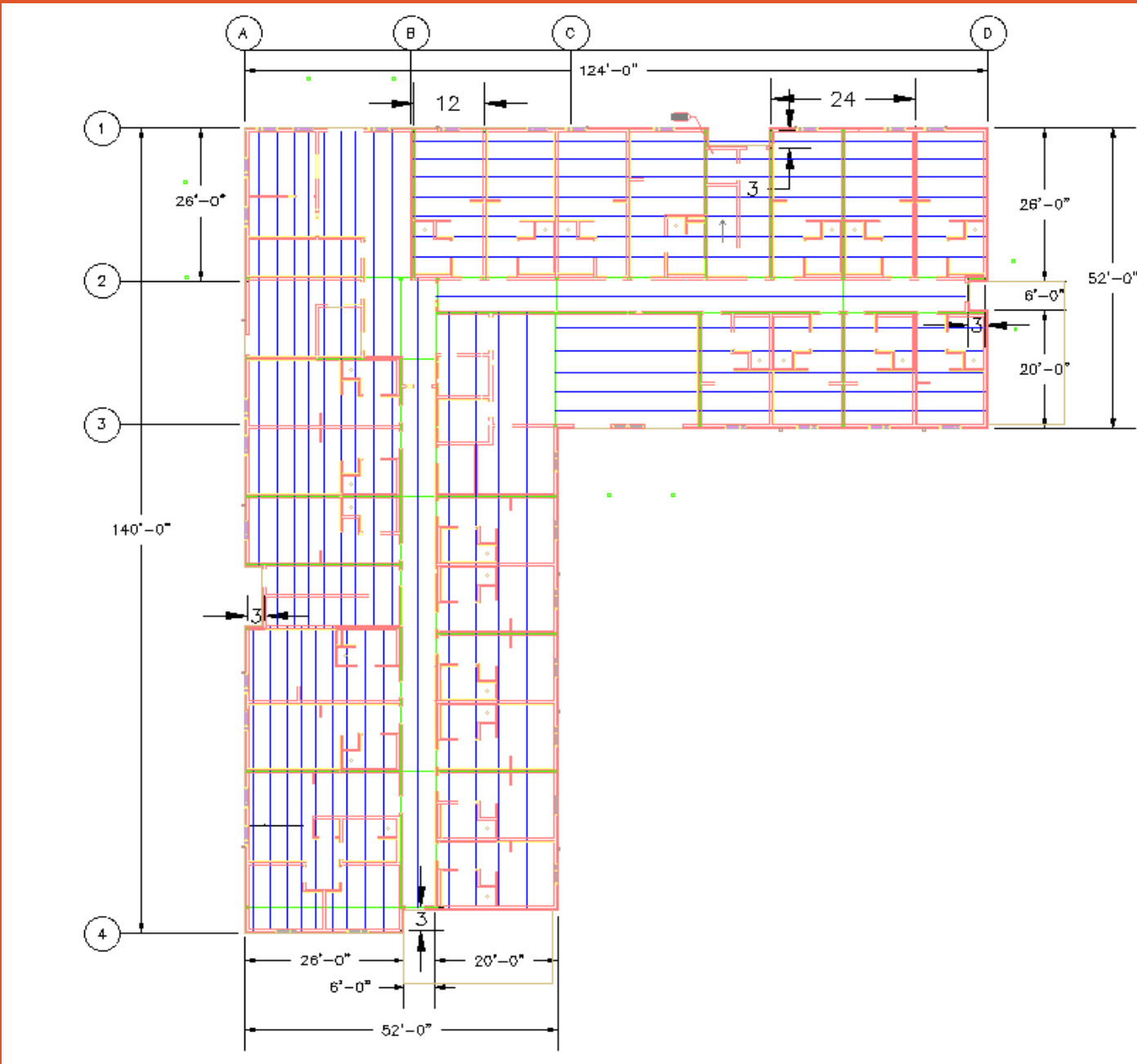
- Wood shear walls and studs separate from gravity system
- Structural panels used for diaphragm
- Designed per ASCE 7-16 to resist wind and seismic loadings



SAP200 Shear Wall Layout

STRUCTURAL DESIGN-  
GRAVITY

- Steel W-shapes for Columns, girders, and beams to make the structural frame
- Steel C-shapes for floor joists to distribute the loads
- Staggered multi-pin connections at every steel-to-steel connection



Column Layout



HMSC STUDENT HOUSING PROJECT

RESIDENT COMFORT - RESILIENT DESIGN - COMMUNITY CONNECTION

PROJECT  
DESCRIPTION

A new dormitory housing facility for Oregon State University Marine Hatfield Science students and researchers in Newport, Oregon.

KEY DESIGN  
FEATURES

**Structural:** Steel gravity system with a wood lateral system

**Water Resources:** Bioretention devices

**Geotech:** Continuous spread footing foundation

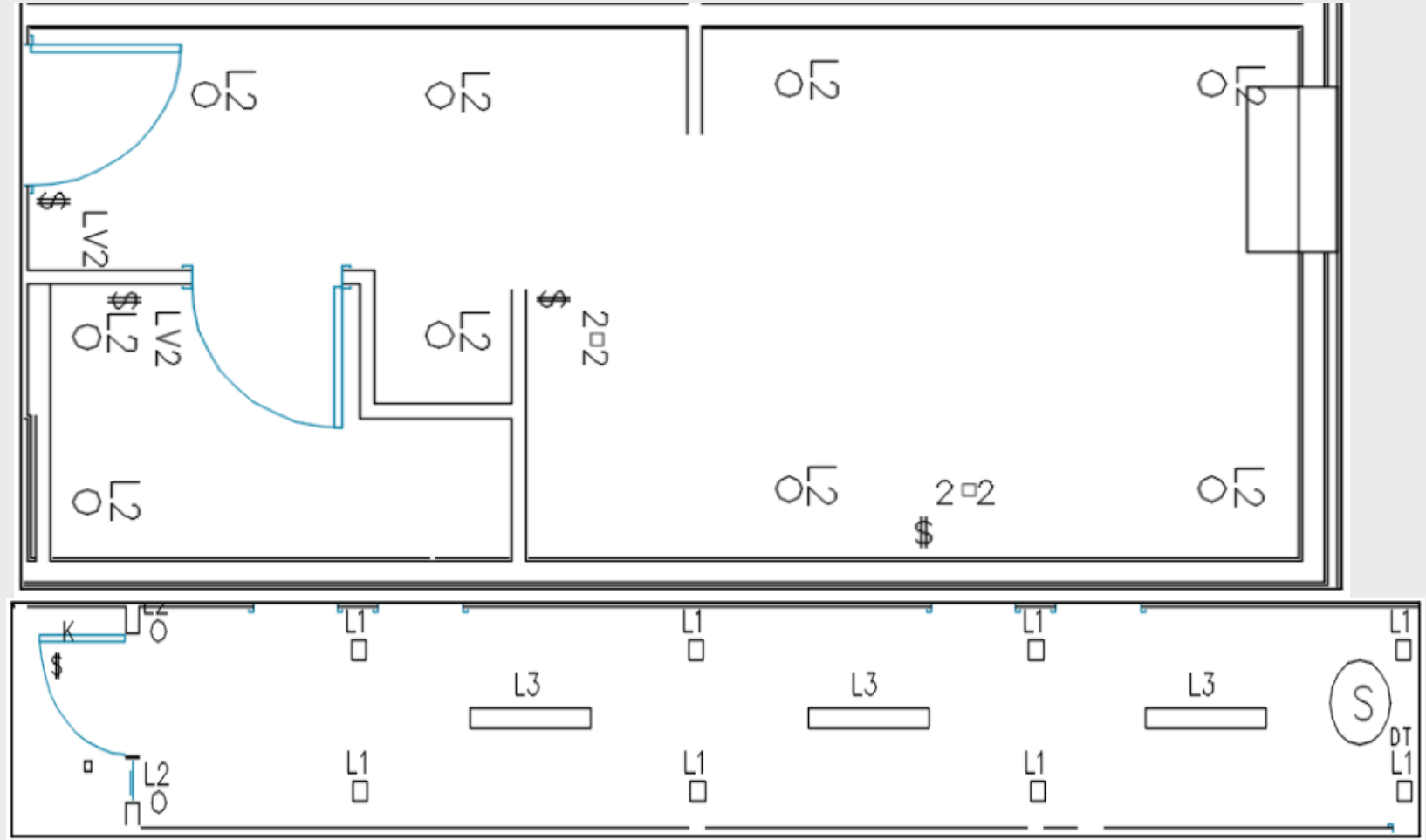
**Building Envelope:** Cork as insulation (Amorim Cork Insulation)

**Lighting:** Human-centric lighting design solution for corridor and deluxe studio



Location: 4030 SE Harborton St. Newport, Oregon

LIGHTING DESIGN



Lighting Layout

Primary Objective:

- Emphasize occupant wellness and safety via electrical light and daylight.

Secondary Objectives:

- Present the appropriate subjective psychological impressions for each space
- Incorporate principles of human-centric design which promote occupant productivity and comfort.

**Design Solution:** Utilizing a window system with triple-glazed, low-e glass. The corridor has materials with high reflectance. Lighting controls are zoned by a space's use-case to improve user control and flexibility. Dual-technology sensors and key switches assist in efficiency.

BUILDING ENVELOPE DESIGN

Primary Objective:

- To maintain structural integrity, ensure energy efficiency, and protect against environmental elements.

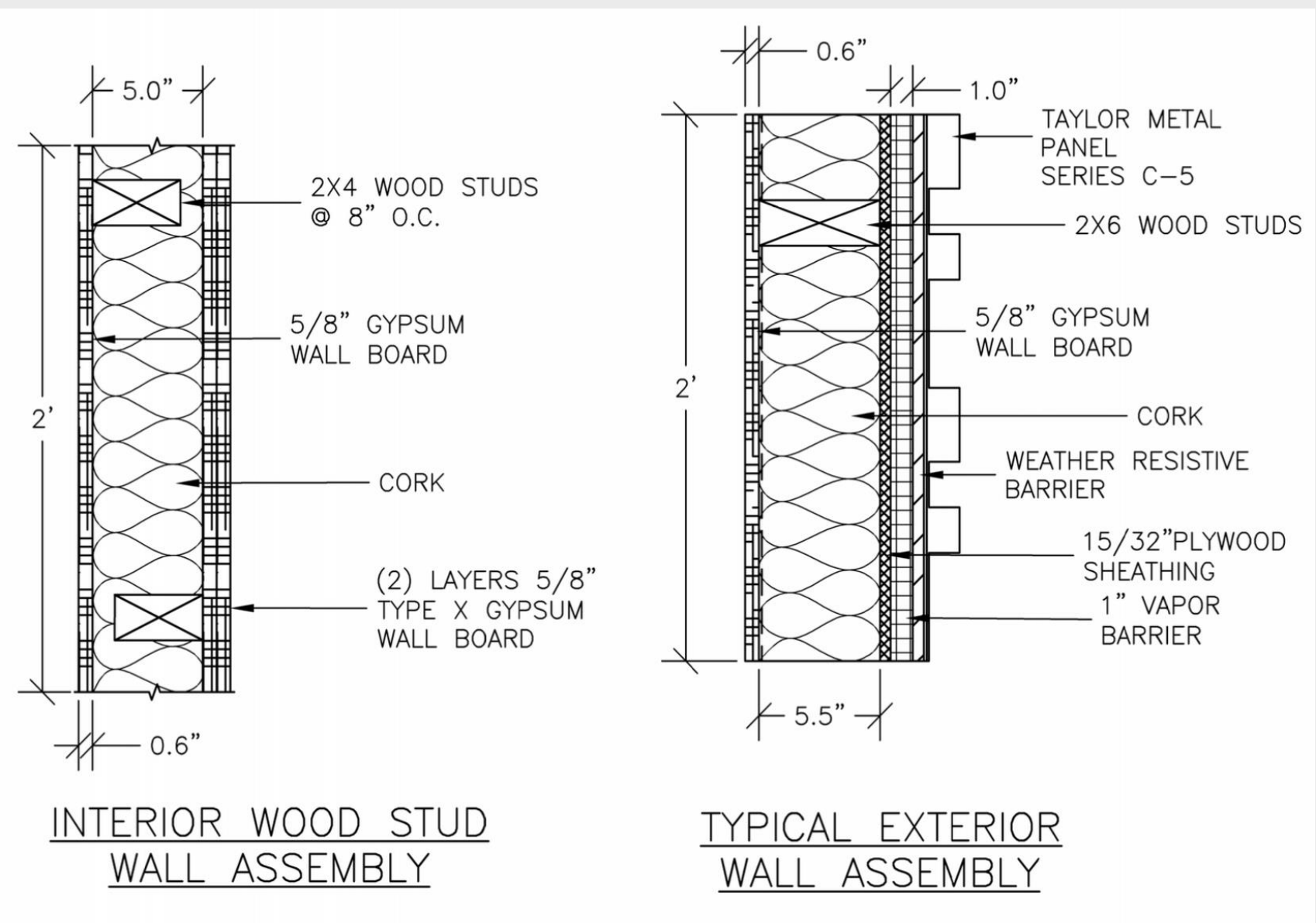
Global Warming Potential (GWP):

ThermaCork	C-5 Exterior Cladding
-2040 kgCO <sub>2</sub> e	16.1 kgCO <sub>2</sub> e

R-Value:

- How well building insulation can prevent the flow of heat into and out of the home

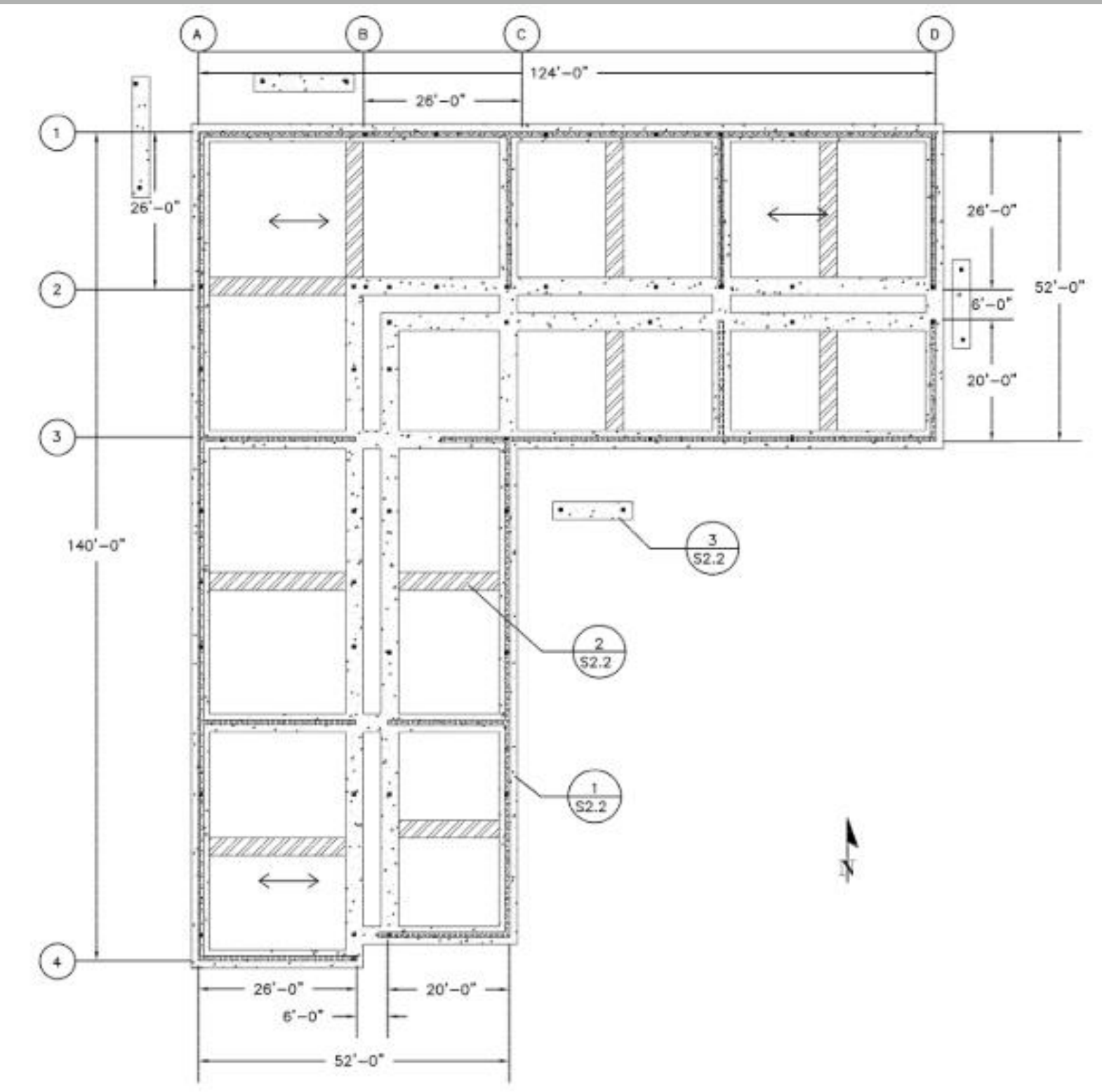
Interior: 35 ft<sup>2</sup>·°F·h/BTU  
Exterior: 15 ft<sup>2</sup>·°F·h/BTU



Typical Assemblies

GEOTECHNICAL DESIGN

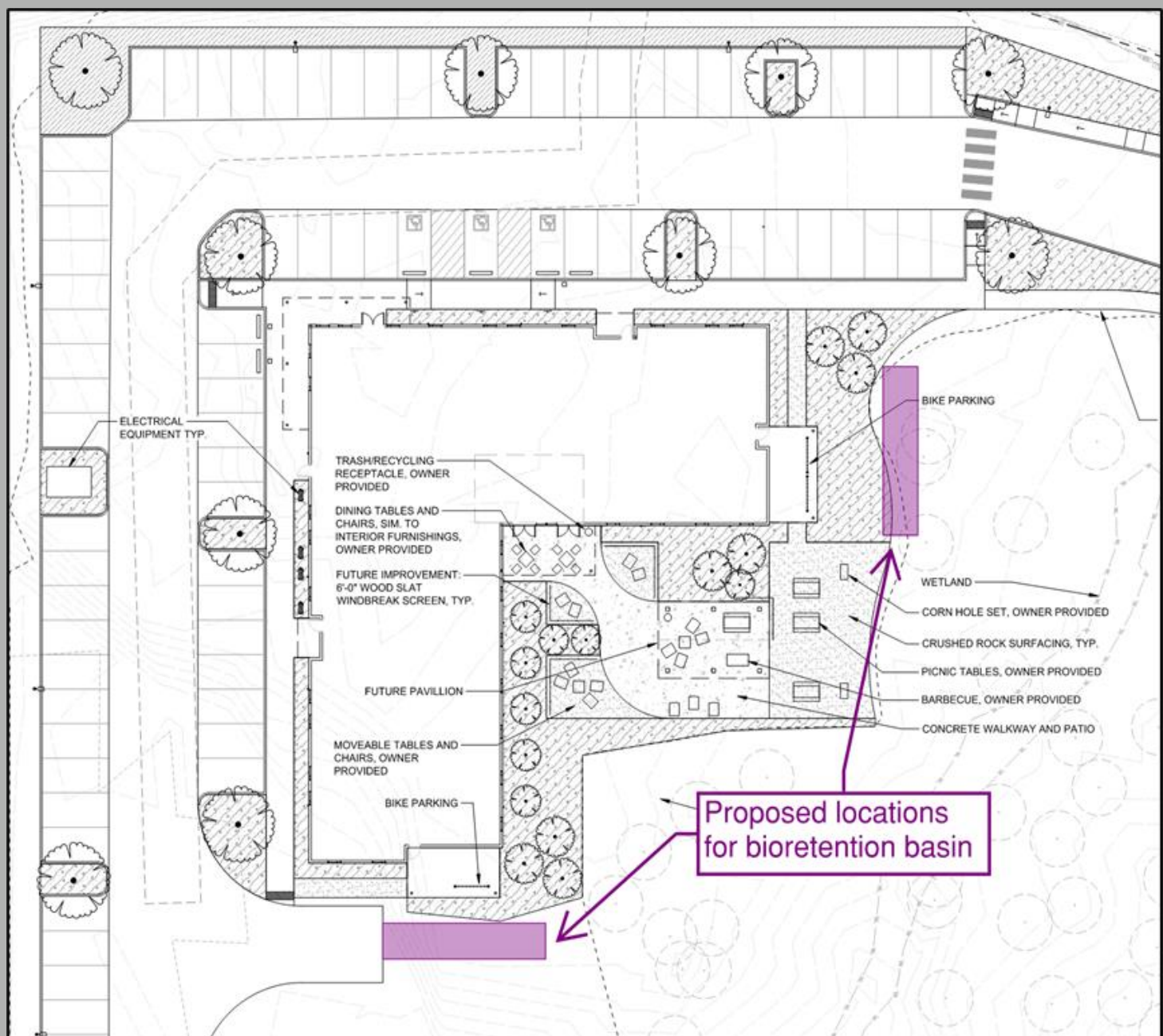
- Spread Footings located directly beneath columns
- Grade beams used to counteract seismic effects and soil liquefaction potential.
- Foundation constructed on 3' of compacted gravel



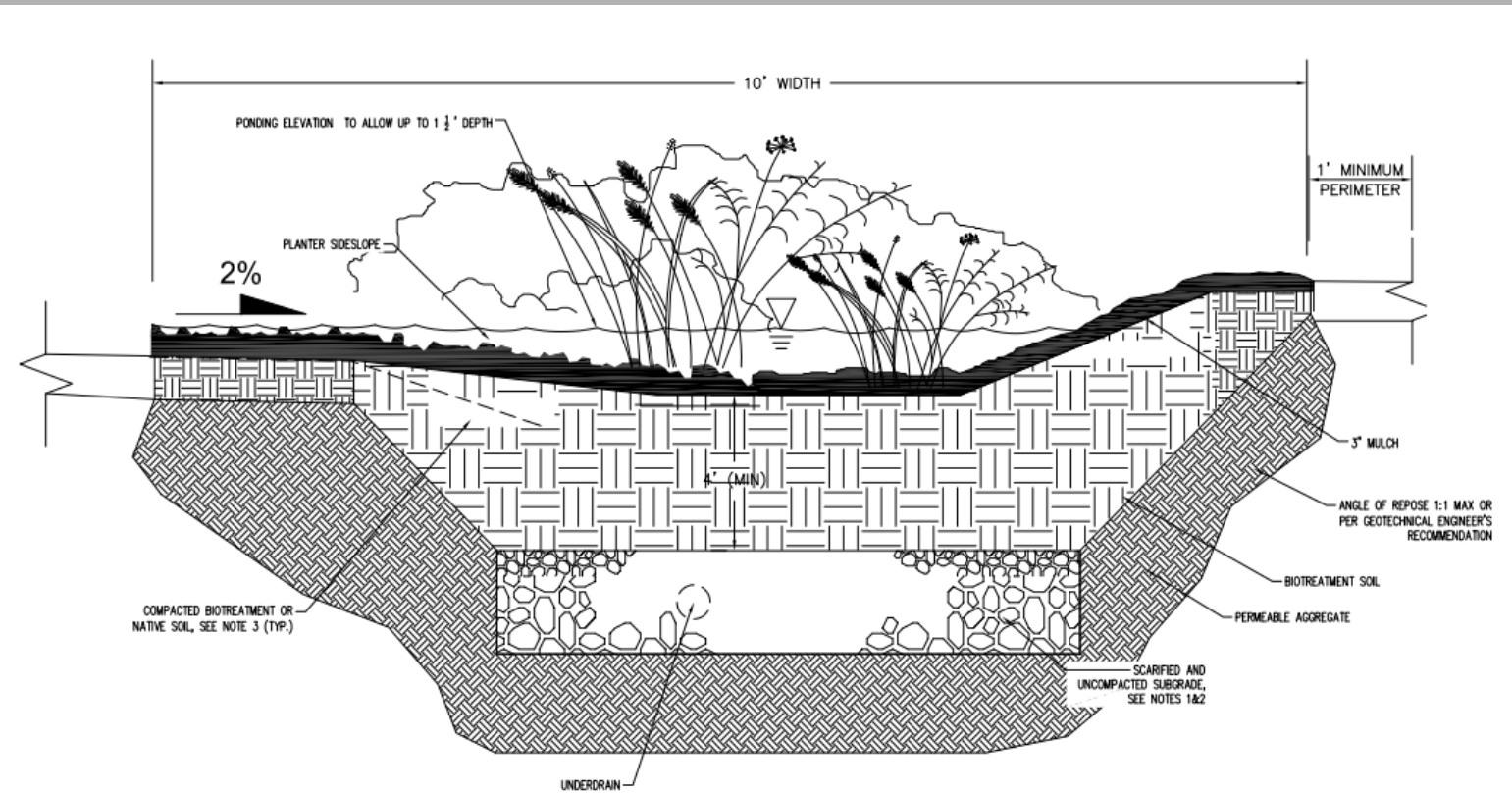
Foundation Layout

WATER RESOURCE DESIGN

- Bioretention Pond
- Design Dimensions: 10' x 30' x5'
- Storage Capacity: 2100 ft<sup>3</sup>
- Filtered water is discharged into wetlands South of the project site



Bioretention Basin Locations



Typical Bioretention Basin Section