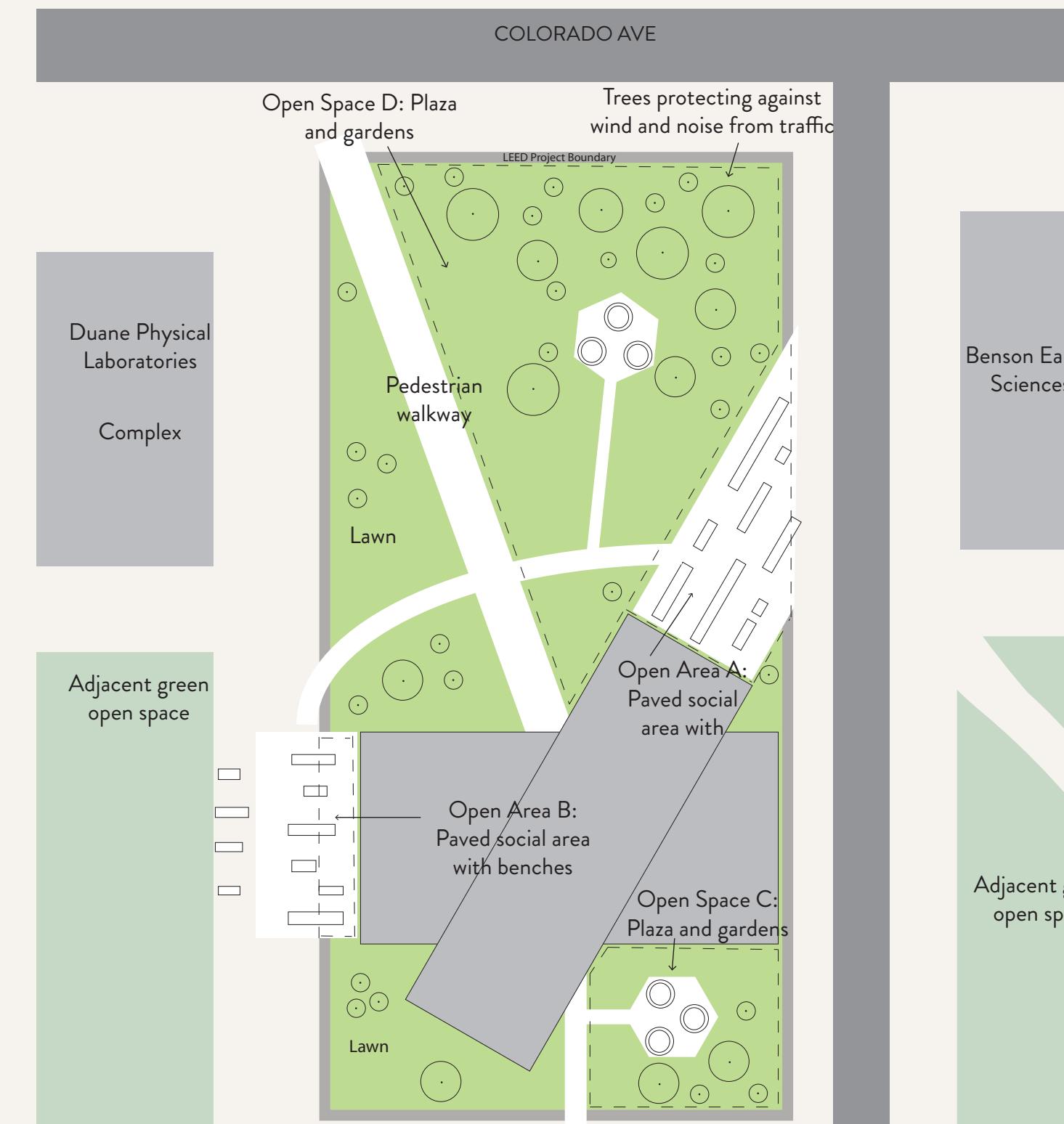


THE COLLISION

The Collision is a multi-purpose, academic building that aims to integrate students and researchers of Architectural Engineering and Environmental Design at the University of Colorado Boulder.



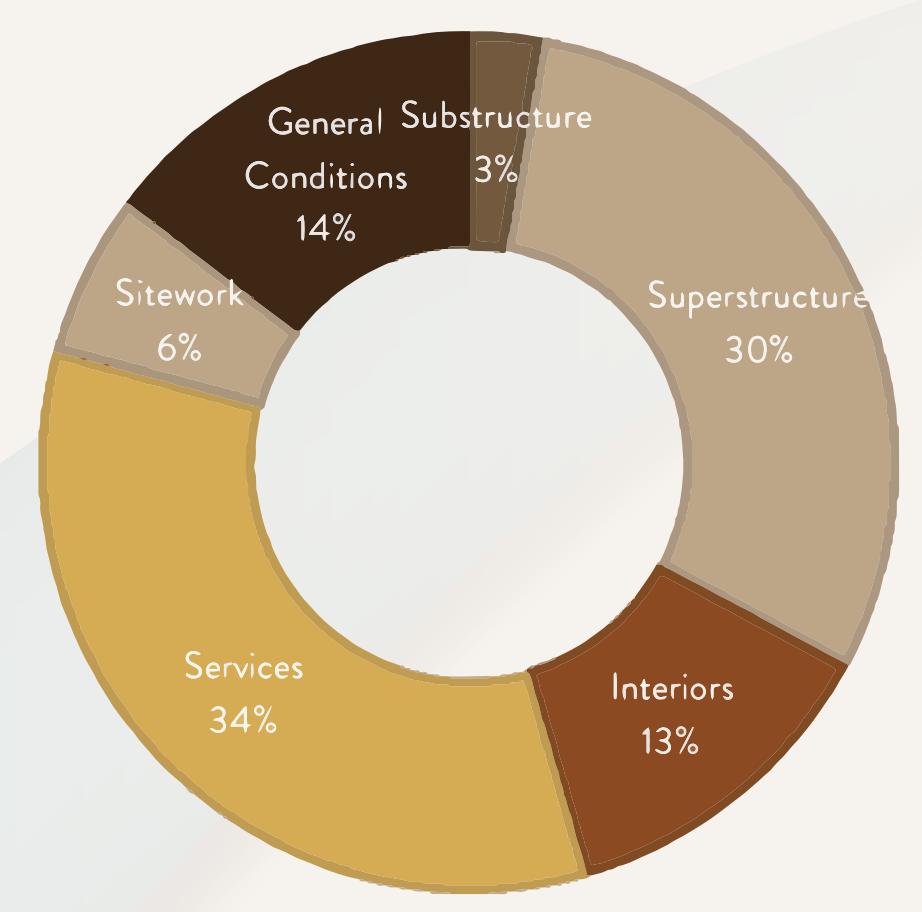
Cost:
\$ 5,880,000

Cost/ft²:
\$ 409

Project Duration:
12 Months

LEED Approved Credits
Optimize Building Performance
Open Space
Heat Island Reduction
Access to Quality Transit
Outdoor Water Use Reduction
Construction Indoor Air Quality Management
Quality Views
Light Pollution Reduction

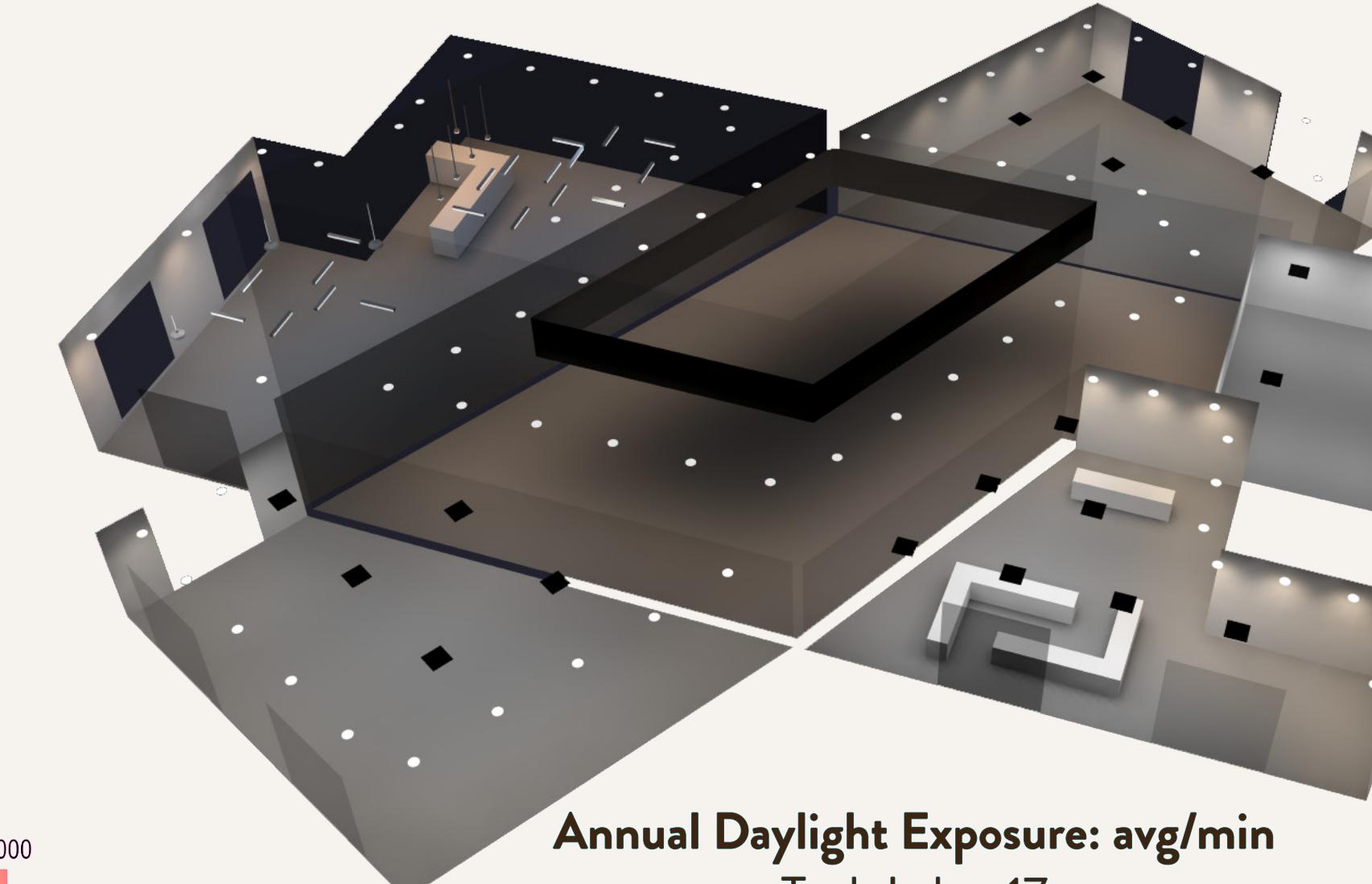
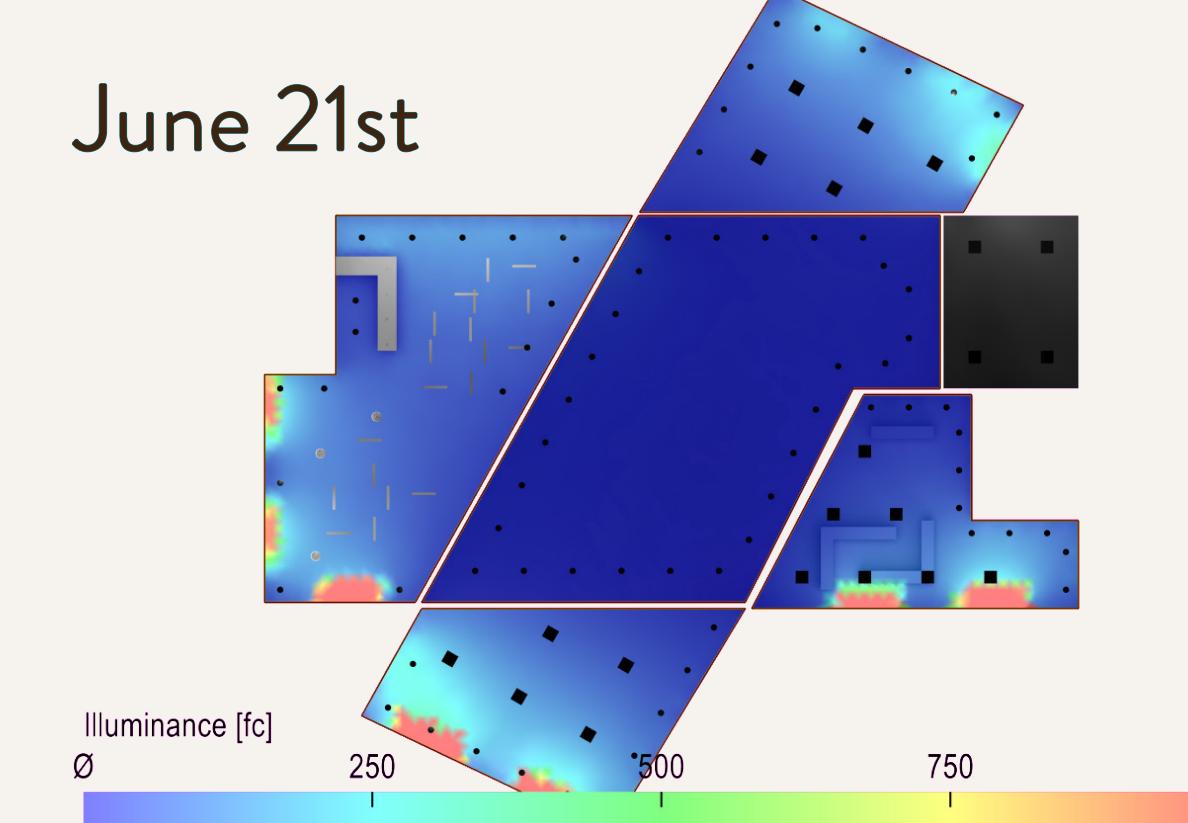
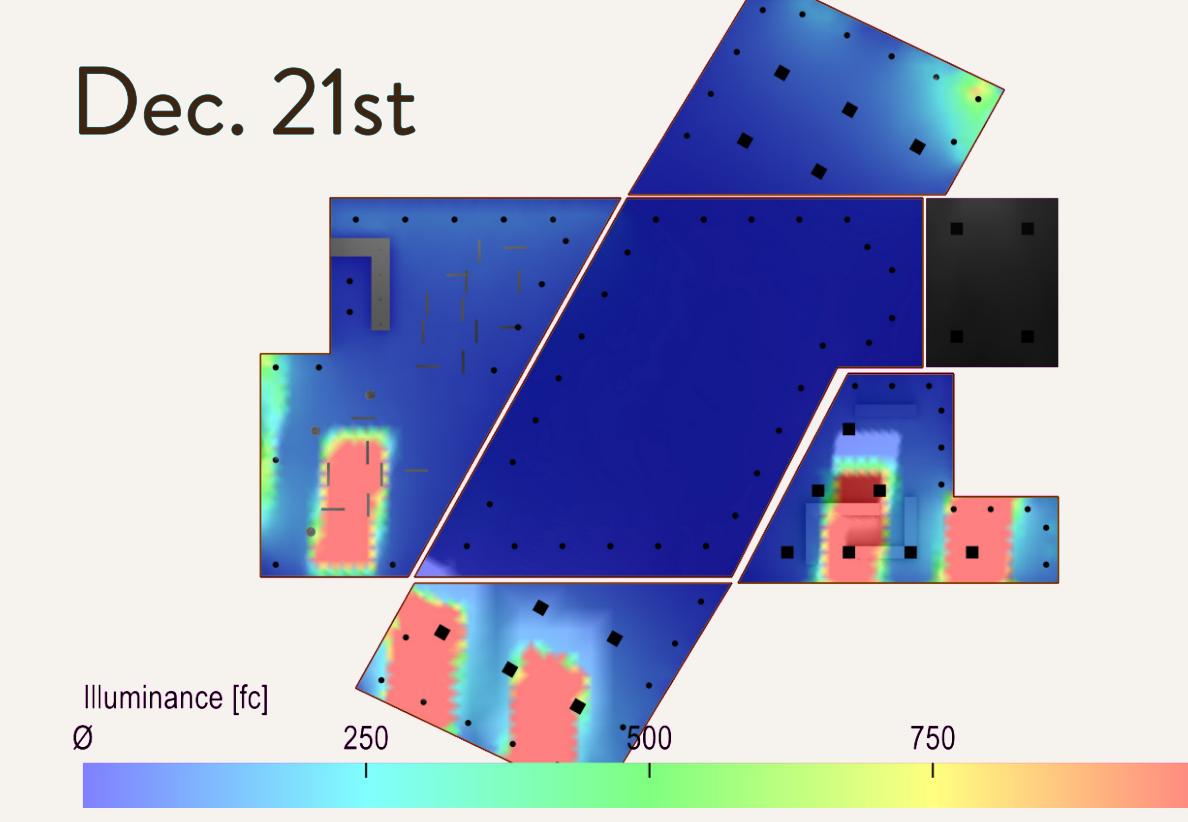
Cost Breakdown



Schedule

MILESTONE	DATE COMPLETED
Pre-Construction Start	January 16, 2019
Conceptual Design Complete	February 20, 2019
Schematic Design Complete	March 22, 2019
Design Development Complete	May 14, 2019
Project Start	May 15, 2019
Contract Awarded	May 17, 2019
Sitework Complete	July 8, 2019
Caissons Complete	August 5, 2019
Gradebeams Complete	September 12, 2019
Slab-on-Grade Complete	September 25, 2019
Substructure Complete	September 25, 2019
Elevator Core Complete	November 6, 2019
Floor 1 Complete	March 11, 2020
Floor 2 Complete	May 12, 2020
Roof Complete	January 8, 2020
Landscape Complete	January 29, 2020
Project Complete	May 20, 2020

Lighting



Annual Daylight Exposure: avg/min

Tech Lab = 17

Compt Lab = 34



Mechanical

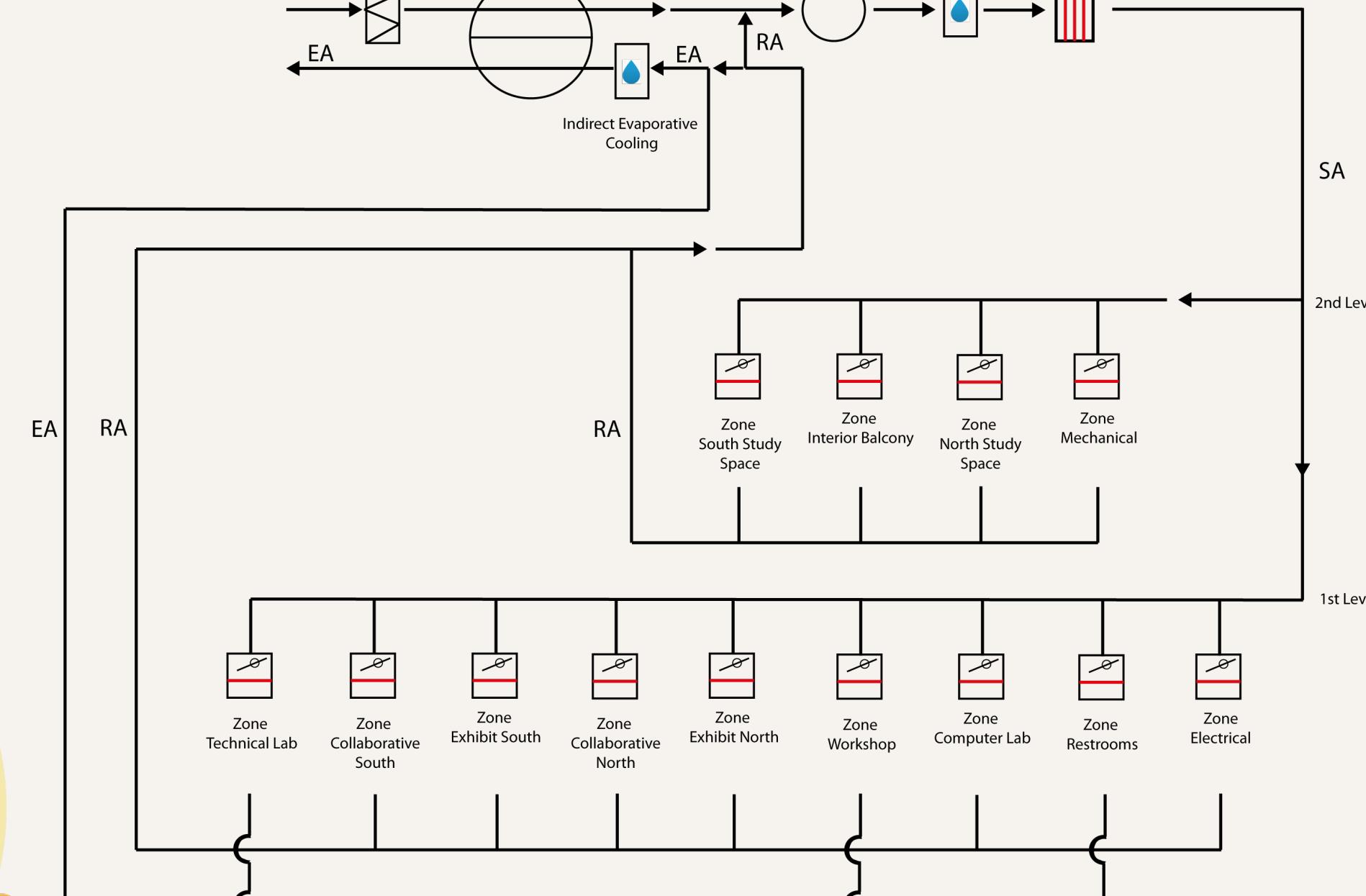
EUI Benchmark: 56 kBtu/ft²

Strategy

- Horizontal and Vertical Louvers
- Occupancy Sensors
- Daylighting
- Efficient Envelope

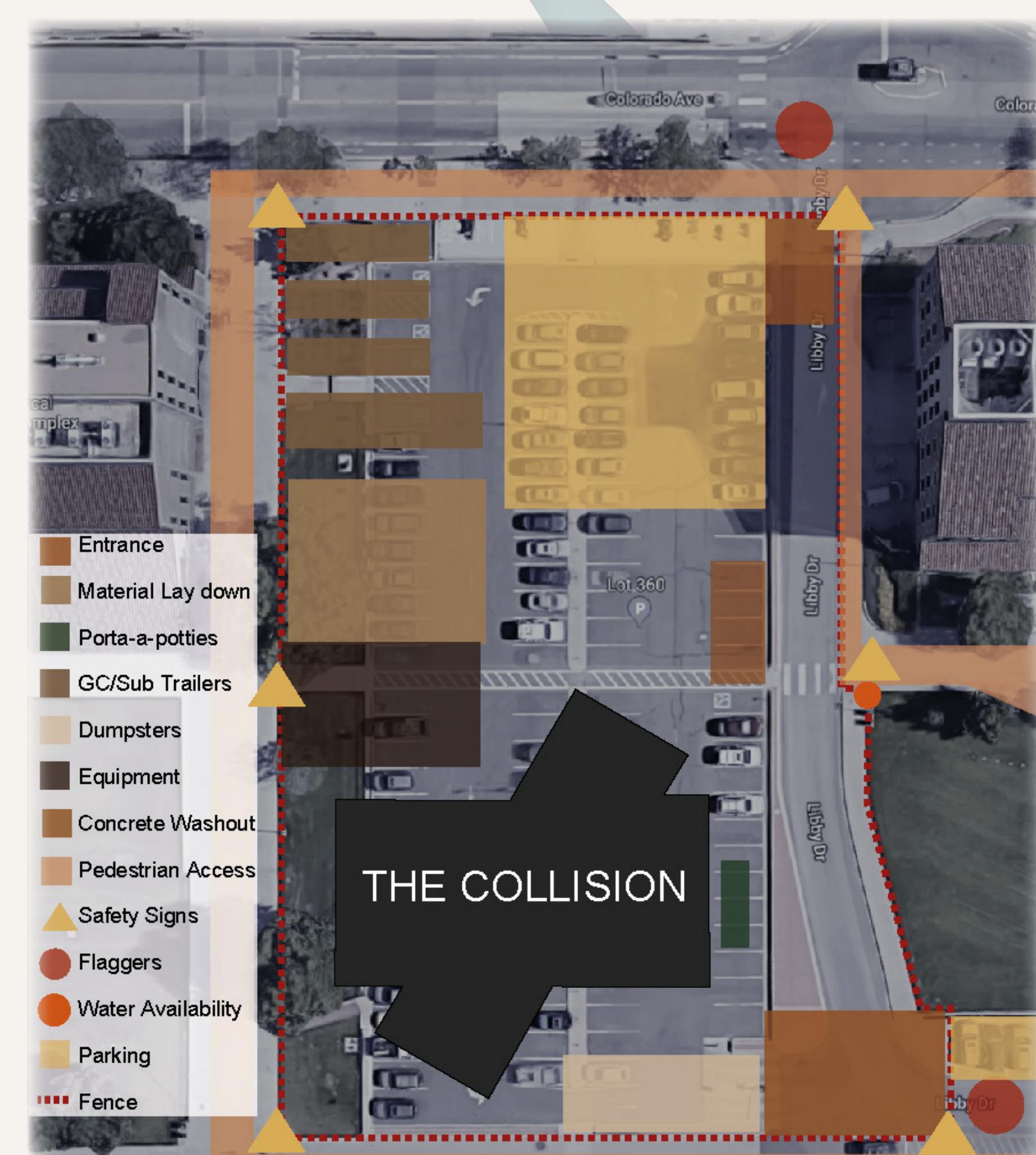
VAV System

- Energy Recovery
- Direct + Indirect Evaporative Cooling
- Cooling: 30 tons
- Heating: 50 MBH



Construction

Site Layout

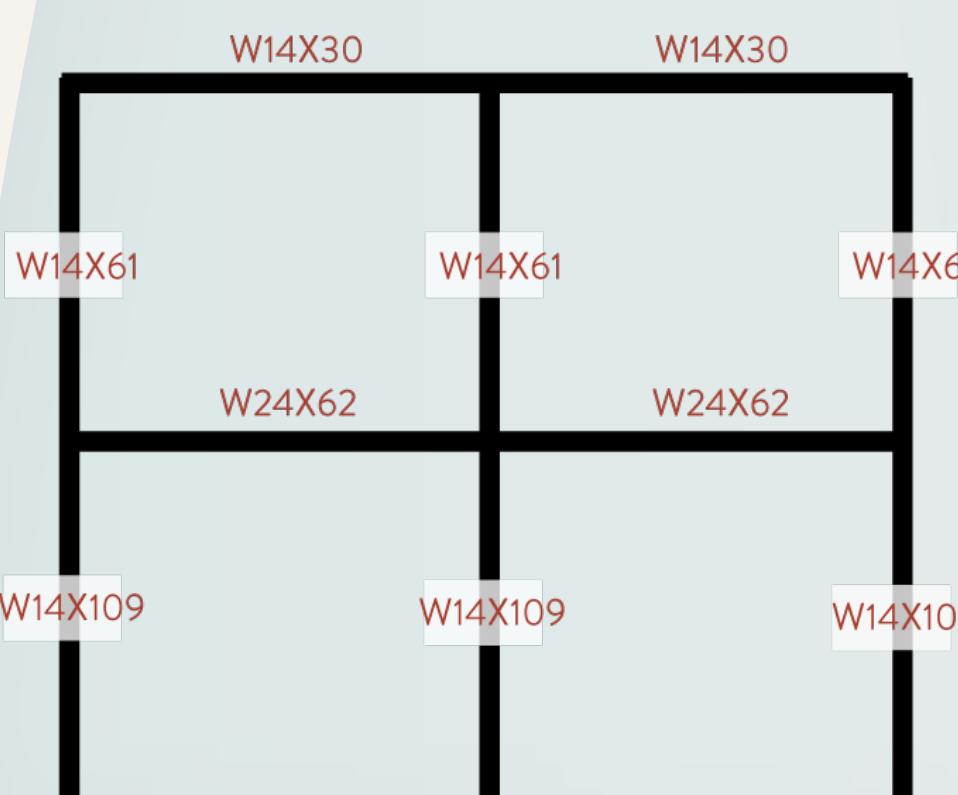


Structure

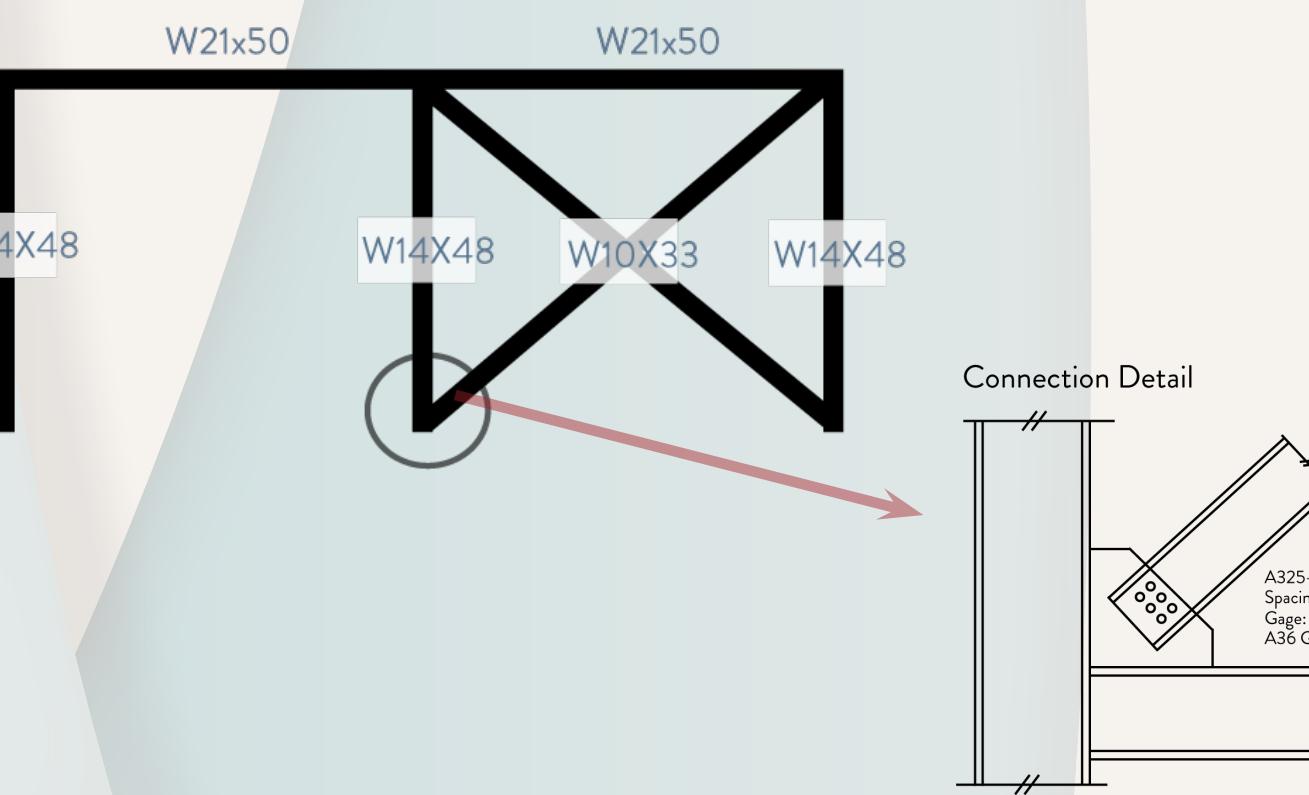
The Collision will be composed of A992 structural steel framing with precast concrete wall panels. The structure will transmit loads to the foundation. Exterior columns will rest on a 4' tall grade beam, which will transmit loads to 24" diameter drilled piers. Interior columns will directly transmit loads to the drilled piers. A 5" slab on over excavated, moisture-treated, and re-compacted structural fill creates the ground floor system. The floor system of deck 1 will be a 4" slab on Vulcraft steel pan on Vulcraft steel joist, while deck 2 will be roofing on Vulcraft steel pan on Vulcraft steel joist.

Lateral Force Resisting System

Moment Frame



Moment Framing with Bracing



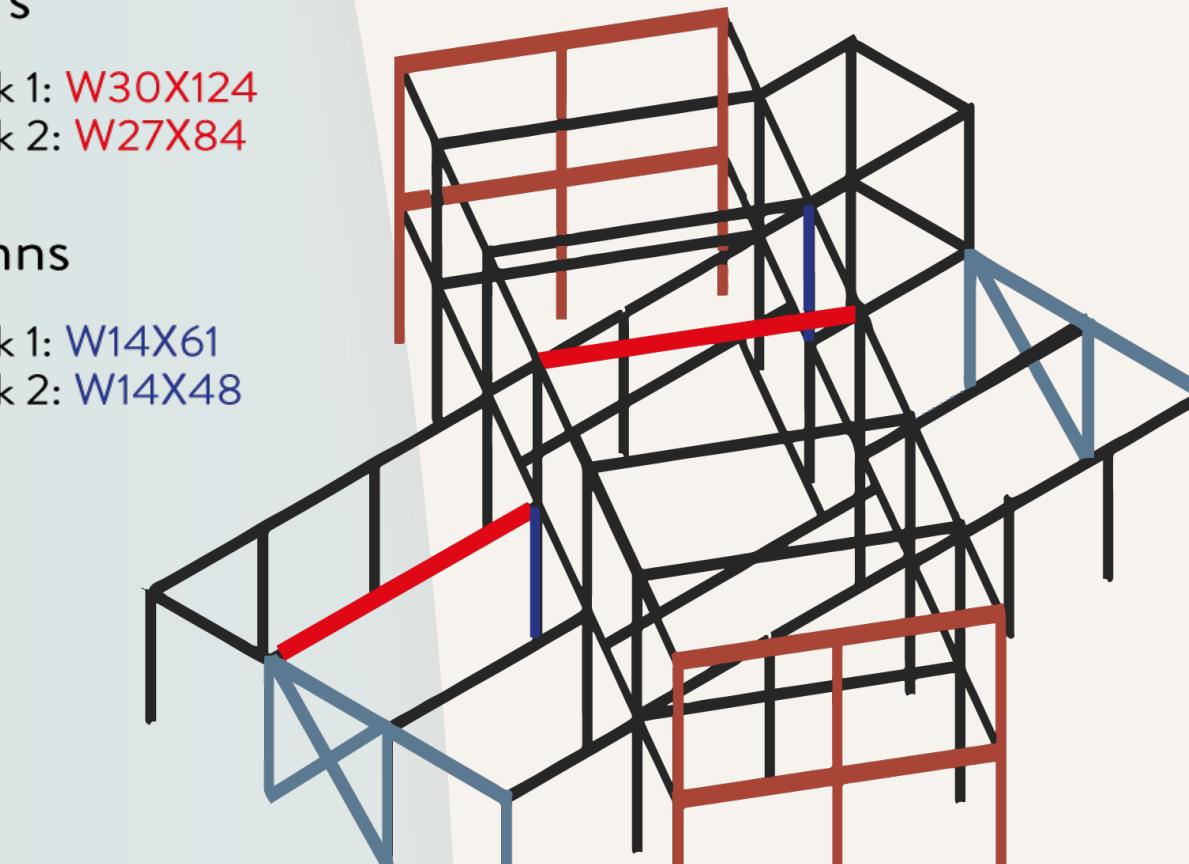
Governing Structural Members

Girders

Deck 1: W30X124
Deck 2: W27X84

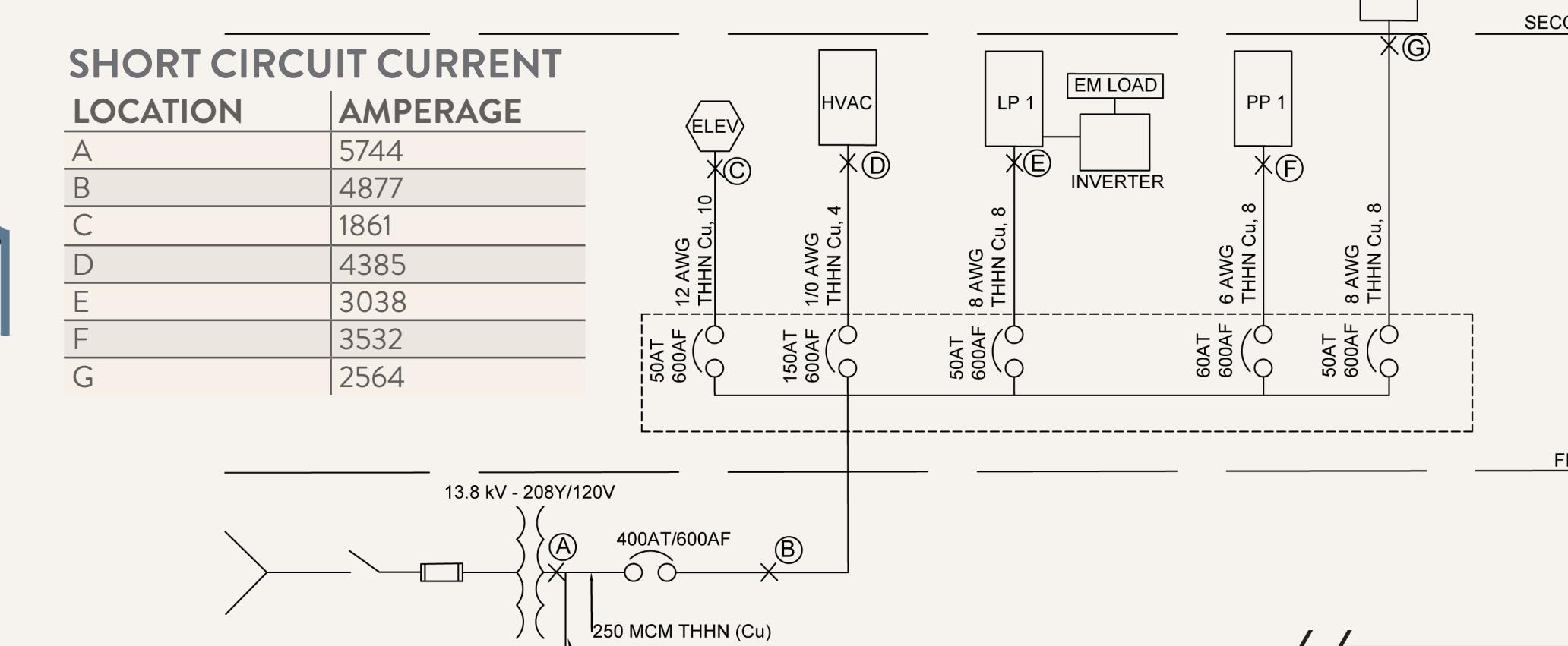
Columns

Deck 1: W14X61
Deck 2: W14X48



Electrical

Energy Efficiency: All the feeder is oversized to reduce energy use by 8000 Watts wasted from heat loss in the wiring. The use of an energy efficient transformer saves 3071 kWh per year.



Total Power Load in kVA

