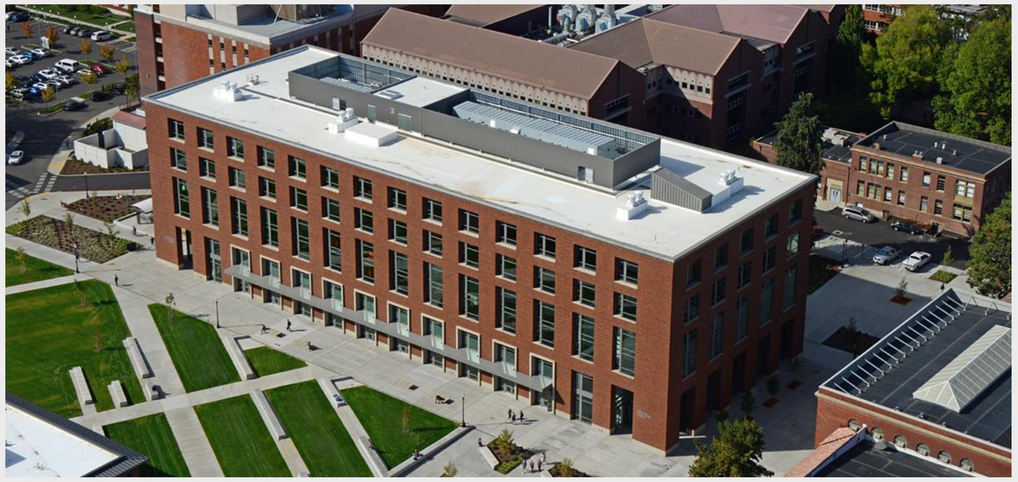
LEARNING INNOVATION CENTER (LINC)

OREGON STATE UNIVERSITY
165 SW SACKETT PL, CORVALLIS, OR 97331

Proposed design solutions for the LInC on OSU Campus, with an emphasis upon human health, comfort, and safety within the built environment. A collaborative effort from both Group L4 and Group L6 of the CCE Capstone Design Course.

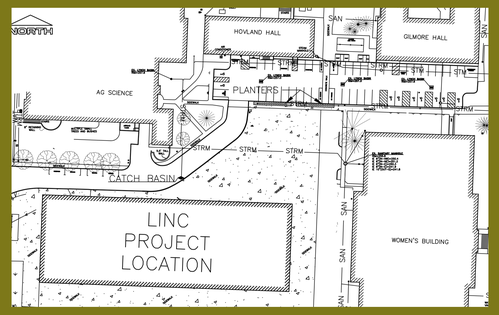


https://fa.oregonstate.edu/project-delivery/learning-innovation-center-linc-classroom-building

EXISTING CONDITIONS

- Located on Oregon State University's Corvallis Campus
- Proposed building site adjacent to west side of Women's Building
- 0-2% grading
- Streamflow from the site moves from northeast to southeast direction
- Reusing demolished materials for interior finishes (e.g. trees)

WATER RESOURCES



Plan View of Proposed Site Location

- Reduced parking lot area to minimize carbon footprint
- Learning in Energy and Environmental Design (LEED) Standards
- Permeable pavement; northeast parking lot of proposed LInC building site
- Planter box installation to mitigate runoff volume from parking lot

STRUCTURAL DESIGN

https://bora.co/project/learning-innovation-center/

Long Span Section Example (Classroom 100)

Gravity System

- Concrete vs steel construction materials
- Long-spanning composite members
- Limited interior columns
- Traditional design for sub-framing and filler beams
- Three different designs for interior, exterior, and upper floor columns

Lateral Force-Resisting Systems

Shear Wall Design

- Shear walls adjacent to stairwells, bathrooms, and elevator shafts
- 2-foot thick concrete shear walls designed to withstand lateral load(s)
- Smallest wall type; Four #18 rebar spaced every 12-inches
- Largest wall type; Four #10 rebar spaced every 12-inches

Lateral Brace Frame Design

- Lateral wind and seismic loading considered
- Four East-West Frames distributed throughout structure
- Two North-South Frames placed on both the east and west end of building
- Wind and seismic loads considered for lateral loading
- Smallest brace frame sized W8x58
- Largest brace frame sized W14x398

LIGHTING DESIGN

4th Floor Lighting Concept (South Corridor)

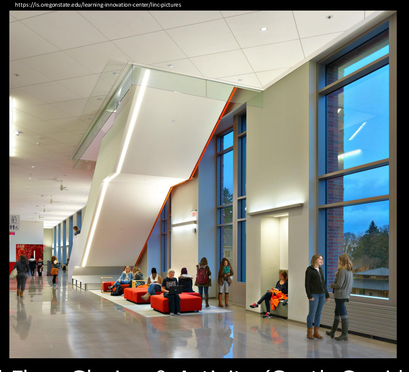
- Psychological reinforcement and student health
- Daylight harvesting on south façade to minimize power consumption
- Artistic and creative solution

4th Floor Lighting Solution (South Corridor)

MECHANICAL DESIGN

- Thermal comfort (ASHRAE 55)
- Mitigating Solar Heat Gain (SHG) from south façade glazing

https://fa.oregonstate.edu/learning-innovation-center/linc-pictures



2nd Floor Glazing & Activity (South Corridor)

- Increased ventilation to south corridor(s); 2nd and 3rd floor.
- Dedicated Outdoor Air System (DOAS)
- Chilled Beam Design

Oregon State University