CHEMEKETA COLLEGE AGRICULTURE COMPLEX

DESIGNED TO BE A
WELCOMING GATHERING PLACE FOR ALL

FFA Architecture

STRUCTURAL

The focus of the structural team was to provide a safe, flexible community space that reflects the culture of the Willamette Valley.

LOW ROOF GRAVITY FORCE RESISTING SYSTEM

A Mass Timber system of Douglas fir glulam beams and columns and locally sourced Mass Plywood Panels (MPP) were selected for the gravity system.


smartlam.com


frereswood.com


frereswood.com

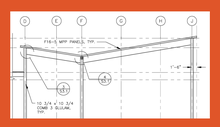
Left to right: Glulam beam to girder connection, example of MPP use, and example of glulam beam and column gravity load system

HIGH ROOF GRAVITY FORCE RESISTING SYSTEM

Due to the angled butterfly roof and the longer spanning beams, the high roof was designed separately. Deep Douglas fir glulam beams and columns were selected for the gravity system, with steel tie rods providing a load path for the lateral forces to the lateral-force resisting system of the building. The connections between the members used concealed hangers to keep the focus of the structural system on the wood components.


Simpson Strong Tie


FFA Architecture



Left to right: Concealed hanger connection used in design, angled glulam beams and columns at the top of the hub, and an elevation view of the system

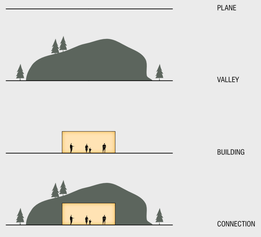
LATERAL FORCE RESISTING SYSTEM

Within the walls of the Chemeketa Ag Building lies a balance of practicality and elegance. Constructed from wood, the 13 shear walls contribute to carbon sequestration efforts while providing reliable protection against seismic and wind forces. Their design versatility allows architects to fulfill their visions with ease, ensuring both functionality and aesthetic appeal.

Oregon State University

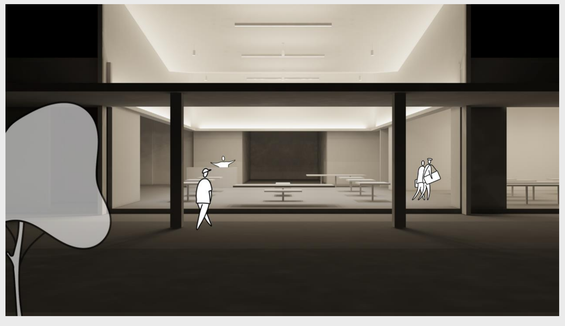
LIGHTING DESIGN

An important goal was to connect the building to the native land of the Willamette Valley. Therefore, the lighting design aimed to allow an abundance of daylight to enter the building in addition to highlighting the natural architectural materials. Day or night, the lighting strived to provide the occupants with a sense of comfort to work or find leisure.



Lighting design theme iconography

Final lighting design solution



Hub lounge entrance to the agriculture complex at night

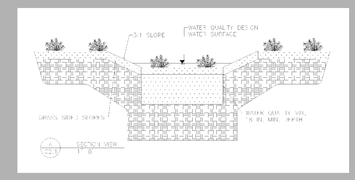
Showcases the flexibility of the hub lounge for various activities

WATER RESOURCES

The emphasis of this design was to enhance the natural aesthetic and prioritize sustainable practices. These goals significantly influenced the final design for this project, which spans 8 acres. The resulting solution combines two green infrastructures: a bioswale and rain garden, designed to withstand half of the 2-year storm and the 10-year storm.

BIOSWALE FEATURES

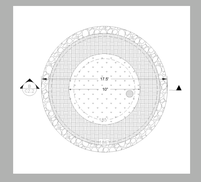
- Dimensions: 185 ft x 30 ft x 4 in
- Capacity: 1700 cf

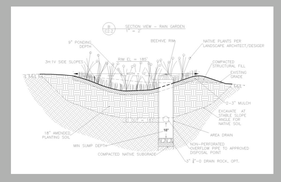


Section view of bioswale for the agricultural complex

RAIN GARDEN FEATURES

- Diameter: Outer - 17.5 ft; Inner - 10 ft
- Depth: 9 in | Capacity: 158 cf





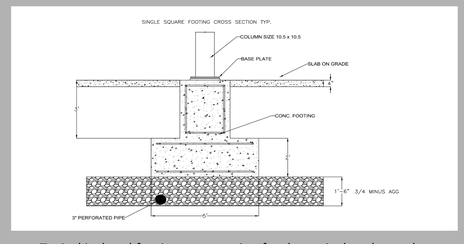
Left to right: Typical rain garden plan view and typical infiltration rain garden section view for the agricultural complex

GEOTECHNICAL

A concrete footing designed to handle loadings from shear walls and columns was designed to offer a safe, reliable, and sustainable solution that embodies the project goals of being a welcoming gathering place.

ISOLATED FOOTING FEATURES

- 5 ft x 5 ft concrete footing
- Placed on top of groundwater table
- 18 in of aggregate beneath footing
- Attaches to glulam columns



Typical isolated footing construction for the agricultural complex