CHEMEKETA AGRICULTURAL CENTER

Welcoming | Environmentally Friendly | Integrative Design

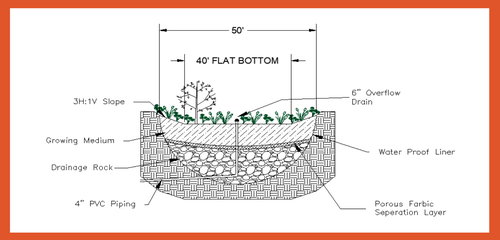
NE Lancaster Dr. Salem, OR. (FFA Architecture and Interior)

WATER RESOURCES

Existing Conditions: Wetland area

- Topography of the site slopes: South-West corner of the property
- Ground water table: 5 to 7 feet

Two large rain gardens will be constructed to capture and treat stormwater runoff. The stormwater is directed towards detention ponds and to city stormwater connections.

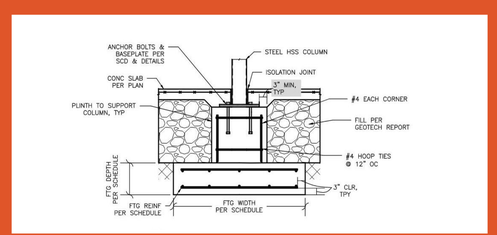


Rain Garden Detail

GEOTECHNICAL

Square spread footings (3x3 to 6x6) will be placed under each column.

Under most braced frames a strip footing is placed holding up multiple columns. Keep settlement under 1" by Keeping columns less than 100 kips.



Square Spread Footing Detail

STRUCTURAL

COLUMNS

Square HSS columns (4 x 4 x 5/16):

- Support typical bay sizes (40ft x 40ft).

Square HSS (6 x 6 x ¼) Zipper columns:

- Support braced frames.

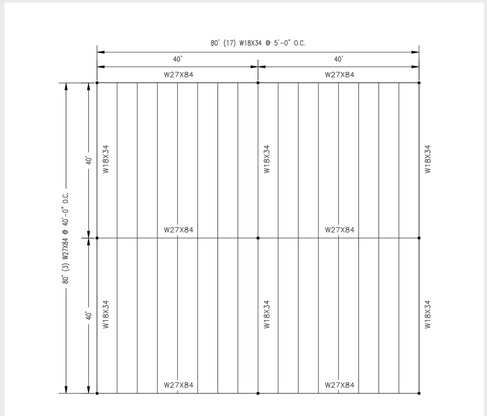
FRAMING

Beams and girders: Steel and W-shape

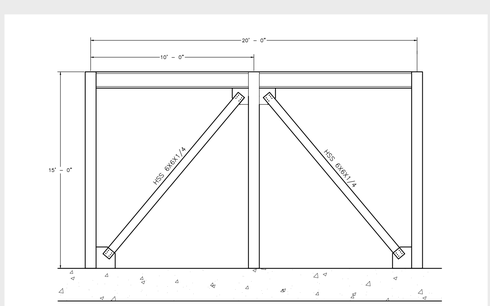
- Beam spacing: 5 ft on center
- Girder spacing: 40 ft on center
- Design Roof Load = 73 psf

Lateral force resisting system: Steel

- HSS (6 x 6 x ¼) members: All lateral bracing
- A chevron or single diagonal configuration: Spans from 10ft to 20ft



Typical Framing Plan



Steel Braced Frame Elevation

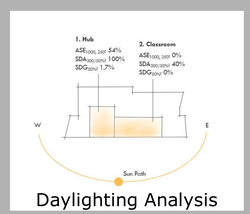
LIGHTING

Layered lighting design focusing on daylighting, task-specific illumination, and circadian-supportive elements.

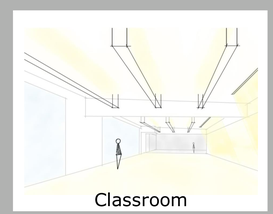
Considerations

- Illuminance Recommendations (IES)
- Energy & Cost
- Human Comfort
- Visually Pleasing

Hub



Daylighting Analysis



Classroom

Lighting Sketches

Hub	
1. Linear uplight grazers	b
2. Recessed downlights	a, c
3. Suspended direct/indirect	a, b
Classroom	
4. Linear direct/indirect	a, b, c
5. Linear wall washers	a

a = manual switch, b = daylight harvesting, c = occupant sensing (Lighting controls)

Oregon State University