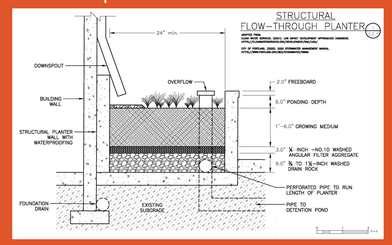
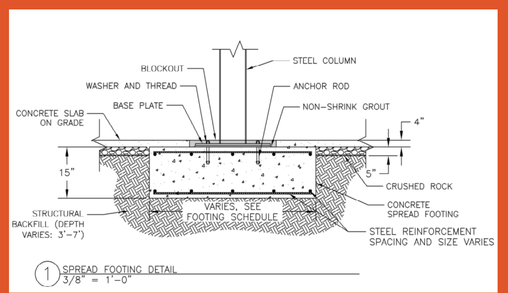
PUBLIC SAFETY BUILDING

WATER RESOURCES AND FOUNDATIONS

- The stormwater system design has focused on low impact development (LID) solutions to manage the increased runoff that will occur with the construction of the new public safety building.
- The design will integrate two LID collection features, structural flow-through planters and vegetated swales, with traditional catch basins. Collected runoff with be conveyed through an underground pipe network to an above-ground detention pond onsite



- The footings chosen were rectangular, spread footings composed of low embodied-carbon concrete.
- The internal and external footings each had their own dimensions, which were constant throughout the building, and can be found below in the footing schedule.



	Width x Length	Thickness
Internal Footing	4′ x 4′	1′- 3″
External Footing	3′ x 3′	1′- 3″

Oregon State University

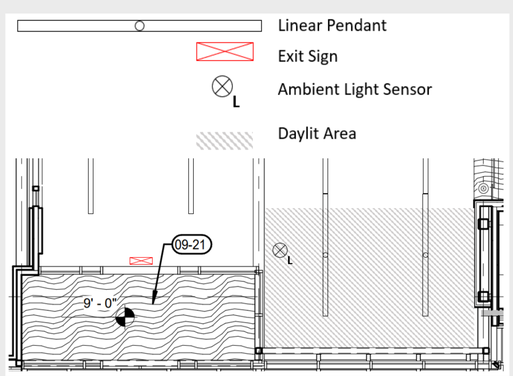
PROJECT INTRO

The Public Safety Building is a single-story, split-level building. The building facilitates multiple branches of the government. Among other rooms, this includes a judicial court for legal proceedings, as well as an interrogation room and evidence lock up room for the police department.

The team's design objectives are to produce a safe design that would be operational during a design event and to produce an environmentally conscious design by engaging in sustainable practices.

LIGHTING DESIGN

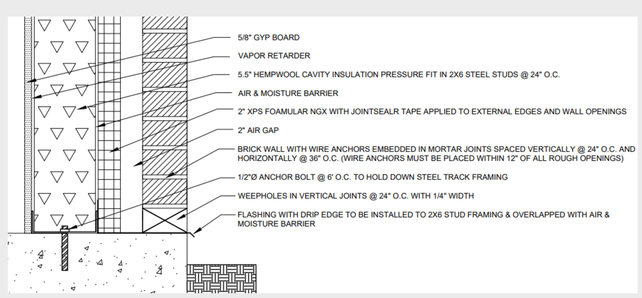
The interior lighting assembly is designed to harvest daylight and utilize light and motion sensing technology. This technology aids in reducing energy consumption by automatically dimming the LED lighting assembly as natural light is available, or spaces are not being used.



Example lighting assembly from windowed lobby.

BUILDING ENVELOPE

- Steel stud framing with carbon-neutral Hempwool cavity insultation.
- Hempwool provides excellent phase shifting with external temperature fluctuations
- Continuous XPS foam board with taped edges that act as a secondary air & water barrier
- 14.25" wall thickness & effective R-value of 22.5



STRUCTURAL FRAME

- We used a steel braced frame. Steel is a robust material, it is familiar to the design team, and it is highly recyclable.
- Columns = "HSS" square tube sections
- Girders & Beams = "Wide-Flange" sections

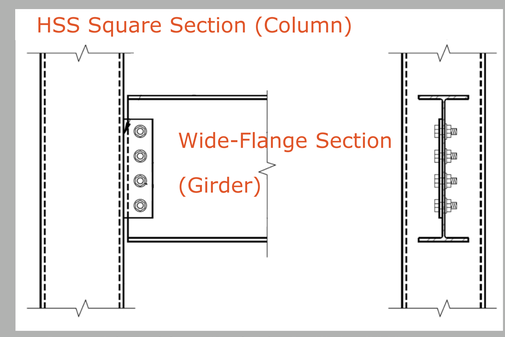
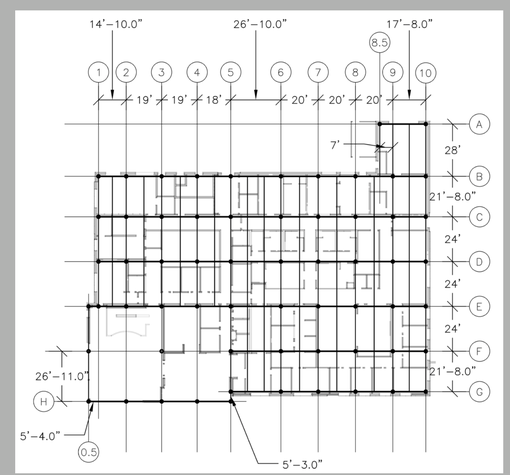


Image Adapted from Steel Tube Institute, 2019

- Low Roof Framing:



- High Roof Framing: