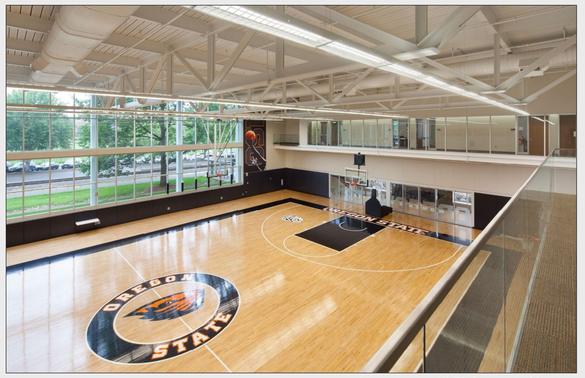
# SPORTS PERFORMANCE BUILDING

The Sports Performance Building will provide practice facilities for Oregon State University's basketball and wrestling teams, along with office spaces for the coaching staff.

image source: HNTB Oregon Architecture



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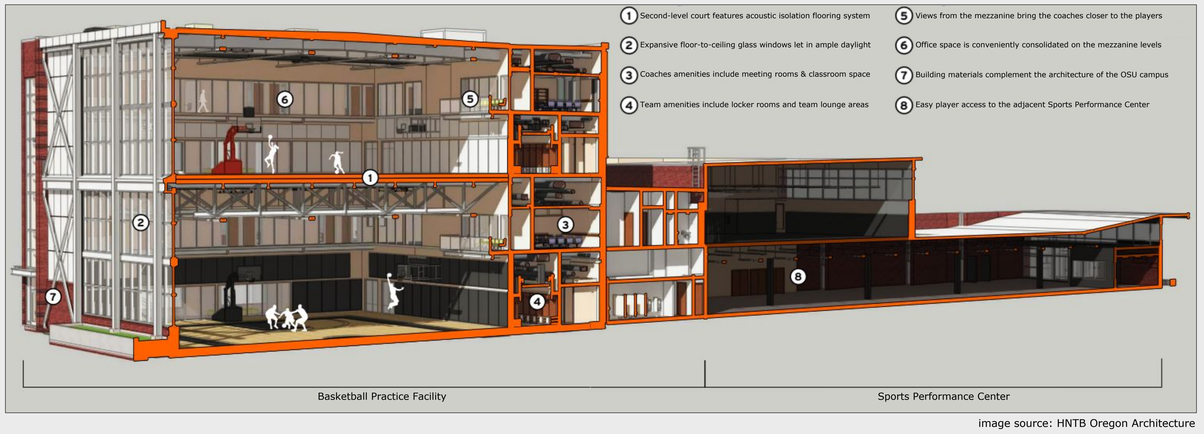


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## BUILDING OVERVIEW

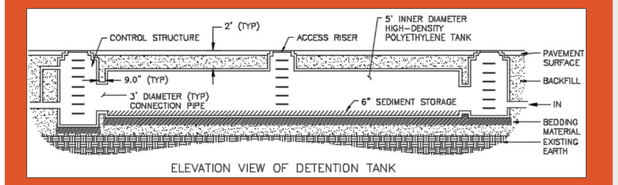
- Total site area = 82,000 sq ft
- Building footprint ≈ 40,000 sq ft
- Wrestling facility: 2 floors
- Basketball facility: 4 floors (2 courts, 2 mezzanines)
- Located among other athletic facilities at the Oregon State Corvallis campus, off of SW Ralph Miller Lane.

## GOALS & OBJECTIVES

- Comply with ASCE principles of sustainable development.
- Balance economic solutions with the enhancement of safety & welfare.
- Maintain the objective of structural integrity.

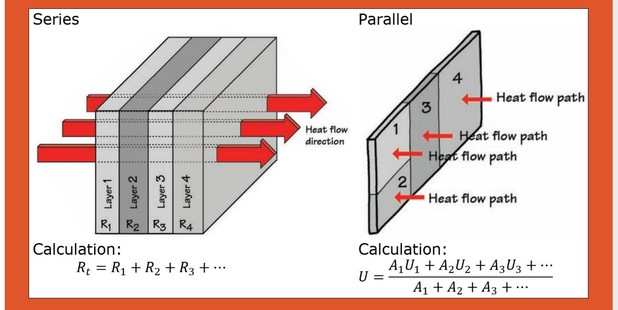
## WATER RESOURCES

- Permeable surfaces account for only ≈18% of the site's total surface area.
- High precipitation rates at the project's location paired with minimal infiltration requires sizable stormwater detention on site.
- Proposed design consists of two high-density polyethylene detention tanks in parallel, each with a length of 40 ft and an inner diameter of 5 ft.




## BUILDING ENVELOPE

- The original design lost much of its insulating capacity due to thermal bridging. Exterior insulation solved this.

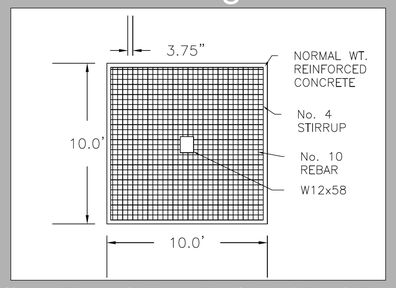



- Cork board insulation was selected because it has a low global warming potential.
- Improving wall insulation quickly leads to diminishing returns. The rate at which this asymptotic behavior occurs depends on the window to wall ratio.

Oregon State University

## STRUCTURAL

### Columns & Footings




Shallow Foundation Isolated Pad Footing

- Column: 12x58 Steel Wide Flange Section
- Footing: 10' x 10' Reinforced Concrete

### Gravity Load & Floor Systems

- 2nd Floor: Prefabricated open-web joists
- Roof: Steel wide-flange sections
- Floor system composition:
  - Concrete slab
  - Metal deck
  - Insulation

### Lateral Force Resisting System

- Resisting system: Shear walls and braced frames
- Seismic Risk Category II
- Shear wall and frame locations: