

OBJECTIVE

- Design a structure that will meet all applicable load requirements
- Select foundations to reduce settlement and maintain stability
- Design storm retention units for expected flows
- Create a building envelope for exterior wall design with a focus on thermal performance



Figure 1. Architectural Building Design (HNTB)

EXISTING CONDITIONS

- 48,775 square feet, undeveloped
- West of Gill Coliseum complex
- South of railroad, but no direct construction impacts

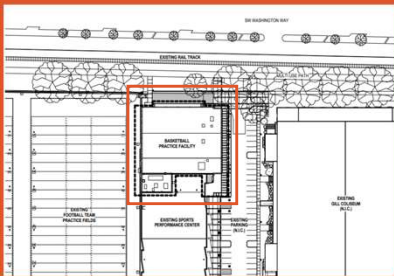


Figure 2. Existing Conditions of Site



SPORTS PERFORMANCE BUILDING

Corvallis, Oregon

The facility will contain two basketball practice courts, a wrestling practice area, and additional support facilities such as locker rooms and offices.

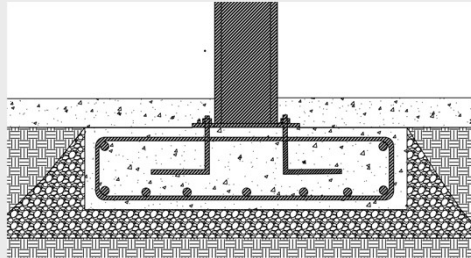


Figure 3. Foundation Design Typical

WATER RESOURCES

- Detention only due to non-pollution generating surfaces
- Detention capacity of 5,517 cubic feet
- 3 rows, 60" diameter Corrugated Metal Pipe
 - 10 and 100 Year, 24 Hour design storm
- Max flow rate 1.34 cubic feet per second
- Emergency overflow riser pipe

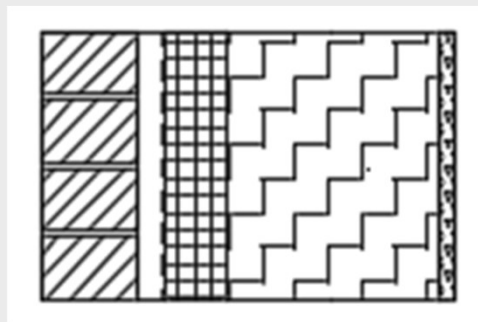


Figure 4. Exterior Wall Assembly Section

- Minimum Requirement: R-13
- New Exterior Wall Assembly: R-27

GEOTECHNICAL

- Soil Quality: Deep Silty Clay and Willamette Silt
- Isolated square foundations to support column loading
 - Minimum Foundation Dimension: 4'x4'
 - Maximum Foundation Dimension: 16'x16'
- Soil Bearing Capacity: 4,000 psf
- Minimize total and differential settlement
- Ground improvement to decrease settlement

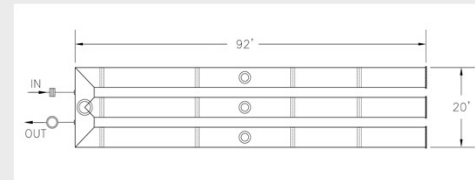


Figure 5. Underground Detention Tank

BUILDING ENVELOPE

- Climate zone: 4C
- Exterior Wall Assembly:
 - Outdoor Air Film
 - 3" Brick Veneer
 - 1½" Air Gap
 - 2½" Polysiocyanurateb (ISO)
 - 8" Steel & Silica Aerogel Blanket Insulation
 - ¾" Gypsum board
 - Indoor Air Film

STRUCTURAL

- Dead loads and live loads calculated
- Column placements for wide flange members
- Tributary areas for each column was calculated
- Loads on columns determined from tributary area

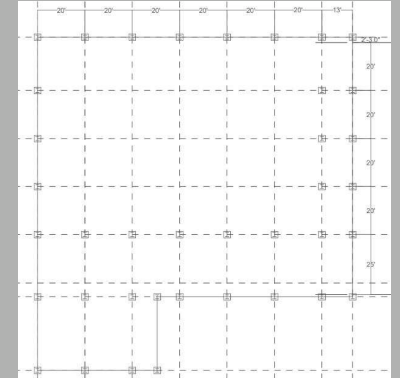


Figure 6. Column Placement

- Floor layout followed column placement
- Beams were placed at 10' O.C.
- Members were designed to carry shear, moment, and beam load
- Standard W-shape beams were used in the first 3 levels
- Nucor Vulcraft LH system was used for the roof spans
- 2 story X bracing system designed for tension and compression
- Bracing sized using AISC Manual

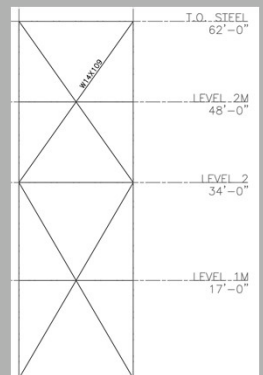


Figure 7. Lateral Bracing