University of Pittsburgh Master Plan Recreational Center
The Reck’n Crew
Spring 2019

Our Team

Structural:
Nate Buechner
Michael Donato
Kate Lundby
James Suszynski

Construction:
Chase Rogers
Allexa Silverman
Cassandra Valcourt

Geotechnical:
Gustavo Cardona

Our Team

Project Description
A major goal of the University of Pittsburgh’s Campus Master Plan is to provide a more centralized recreation facility and form a connection between upper and lower campus. This recreation center sits on the site of the current O’Hara Parking Garage and meets both needs and more. It will provide much-needed dining options and study spaces in addition to state-of-the-art fitness facilities throughout this architecturally stunning, 8-story structure.

Structural
The Structural Team’s scope included the design of floor slabs, beams and girders, columns, shear walls, and the long span zipper truss system. These structural components support the integrated recreation center and parking garage. The architectural features of the recreation center were also a major part of the structural team’s scope, and detailed floor layouts were created to illustrate the overall program of the building. Stakeholder input was a driving force behind the chosen features.

Recreation Center Sample Floor Models

Integrated Parking Garage

Zipper Truss System

Shear Wall Modeling

Column Design Summary

<table>
<thead>
<tr>
<th>Column Design Summary</th>
<th>Longitudinal Reinforcement</th>
<th>Transverse Reinforcement</th>
<th>Number of Columns</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 1/2 x 2 1/2</td>
<td>1 1/2 bars</td>
<td>16 bars at 18 in.</td>
<td>2</td>
</tr>
<tr>
<td>3 1/2 x 3 1/2</td>
<td>1 1/2 bars</td>
<td>16 bars at 18 in.</td>
<td>18</td>
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<tr>
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<td>2</td>
</tr>
<tr>
<td>6 1/2 x 6 1/2</td>
<td>1 1/2 bars</td>
<td>16 bars at 18 in.</td>
<td>1</td>
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</tbody>
</table>

Typical Floor Section (Recreation Center)

Construction Management
The Construction Management team had a broad scope encompassing everything from pre-construction to delivery. Summaries of the comprehensive schedule and cost estimate are shown. Additionally, the team created in-depth health and safety, risk management, phasing, site layout, maintenance and protection of traffic (MPT), and demolition plans. Techniques used to complete these tasks included historical data taken from past recreation center projects, building demolitions and University of Pittsburgh new-construction jobs. The schedule was created using Primavera software and all drawings/models were prepared with AutoCAD.

Summary | Cost
--- | ---
Labor (+20%) | $7,587,083.75
Materials | $3,641,426.42
Permits | $1,793,930.00
Equipment/Other | $30,692,955.00
Sub Total | $170,423,749.02
Bond/Insurance (1.5%) | $2,305,532.28
Construction | $9,205,000.00
Profit (3%) | $8,517,054.57
Total | $170,423,749.02

Acknowledgements
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Dr. Max Stevens
Dr. Luis Vallejo
Dr. Kent Harries
Dr. John Oyler
Dr. John Sebastian
Dr. Andrew Suszynski

University of Pittsburgh Facilities Management:
Hannah Dobos
Anastasia Dubnicay
Ron Leibow
Hannah Dobos
Chris Newman
Dr. Dr. Andrew Suszynski
Dr. Dr. Andrew Suszynski

Design using “AASHTO Soil Nail Wall Reference Manual”

Determining Height of Lifts

Drilled Caisson Shaft

Site Fencing Plan

- Design Load: 1706 Kips
- Max Settlement=0.0 in
- DownDrag = 0

Geotechnical
The Geotechnical Team was responsible for the design of all foundations, soil-nail retaining structures, structural slab-on-grade and completing an in-depth soil analysis to ensure that the construction of the recreation center began on solid ground.