

John Scavelli
Option: Mechanical
Advisor: Dr. Bahnfleth
Project: New York Police Academy

Note-ENS: Estimated Number of Slides

Introduction/Title Slide (ENS: 1)

Outline (ENS: 1)

Building Statistics, General Information

Building Statistics (ENS: 1)

Site, Square Footage, Number of Stories, East and West Campus
Total Cost
General Contractor
Renderings

General Information (ENS: 2)

Architecture
Sustainability
Structure
Electrical/Lighting
Mechanical

Mechanical System Overview (ENS: 2)

Mechanical System Schematics
Hot Water System Schematics
Evaporator System Schematics
Condenser System Schematics

Building Loads (ENS: 1)

East Campus
East Campus Heating and Cooling Load
East Campus Electricity Consumption
East Campus Natural Gas Consumption

East Campus Utility Costs (ENS: 1)

Actual Utility Costs Unavailable
Calculated Utility Costs

Alternative System Proposed (ENS: 1)

Mechanical Depth: GSHP System to Serve the East Campus
– Limits size of Central Plant etc.
Electrical Breadth: Photovoltaic System Above West Campus
Construction Management Breadth: Cost, Labor, Schedule

Ground Source Heat Pump System (ENS: 4)

Justification for Proposed Re-Design
Major Steps for Redesign

Electrical Breadth: Photovoltaic System (ENS: 4)

Overview, Location on Site, Array Design
Photovoltaic Economic Analysis

Construction Breadth (ENS: 3)

Length vs Cost Optimization Graph
Well Field Layout, Placement Graphics
Costs

“The Analysis” (ENS: 3)

GSHP System vs Central Plant: Energy Comparison, Savings Comparison
Life Cycle Analysis

Final Thoughts (ENS: 1)


Pros vs Cons
Reasons to Implement GSHP System



Thank You Slide (ENS: 1)

Thank You
The Pennsylvania State University Architectural Engineering Department
Faculty and Staff
Turner Construction Company

Estimated Number of Slides: 26

Example Slides

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| <p>PENNSTATE</p>  <p>John M. Scavelli Mechanical Option Senior Thesis 2010-2011</p> |  <p>New York Police Academy College Point, New York</p> <p>The Pennsylvania State University: Department of Architectural Engineering</p> |  <p>Master/ Bachelor of Architectural Engineering Student</p> |
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| <p>PENNSTATE</p> <p>Presentation Outline Introduction</p>  <p>John M. Scavelli Mechanical Option Senior Thesis 2010-2011</p> | <p>Introduction</p> <p>Presentation Plan</p> <p>New York Police Academy College Point, New York</p> <p>The Pennsylvania State University: Department of Architectural Engineering</p> |  <p>John M. Scavelli The Pennsylvania State University Architectural Engineering Mechanical Option Master of Architectural Engineering Bachelor of Architectural Engineering Thesis Advisor: Dr. William Bahnsfleth</p> <p>Master/ Bachelor of Architectural Engineering Student</p> |
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| <p>PENNSTATE</p>  <p>John M. Scavelli Mechanical Option Senior Thesis 2010-2011</p> | <p>Alternative Design Proposal</p> <p>Mechanical Depth: East Campus Ground Source Heat Pump System</p> <p>Electrical Breadth: Photovoltaic System</p> <p>Construction Management Breadth: GSHP Cost, Labor, Schedule Impact</p> <p>The Pennsylvania State University: Department of Architectural Engineering</p> |  <p>Master/ Bachelor of Architectural Engineering Student</p> |
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