

- I. Introduction
 - A. Introduce Myself and What I will be Talking about today (1)
 - B. Building – location, design team, function (1)
 - C. Existing Mechanical Overview (1)

- II. Proposal/Objective (2)
 - A. Increase sustainable footprint – include green technologies/lower emissions/Schools Guide
 - B. Use energy recovery (non on current system)
 - C. Supply necessary ventilation – VAV’s are problematic when turned down

- III. Depth – Mechanical
 - A. DOAS/Total Energy Wheel (2)
 - Reduction in CFM and Savings of Wheel
 - B. FPIU (3)
 - How it works/Provide Constant Ventilation Air Needed
 - Show Psychometric Chart for Chilled Water Temperature
 - C. New Chillers and Secondary Chilled Water Loop (2)
 - Purpose
 - Schematic/How it Works
 - D. MAE – CFD (4)
 - E. Results (2)
 - Cost Savings
 - Energy Savings

- IV. Breadth – Electrical
 - A. Roof Layout – before and after (1)
 - B. Solar Panels/Mounting System used – why and background (1)
 - C. Schematic of Back Feed (1)
 - D. Payback Analysis and Added Structural Costs (1)

- V. Conclusions
 - A. LCC Analysis & Recommendations (1)
 - B. Acknowledgments: (1)
 - Contacts: Patrick Murphy, Chris Bratz, Carter Tse, and Sharvil Patel
 - Manufacturers: Tim Dorman, David Cunningham, and Justin Anderson
 - Advisor and Faculty
 - Fellow Students
 - Family/friends
 - C. Questions (1)

Total Slides: 25

Senior Thesis Presentation



Hunter's Point South School
Queens, New York

Britt Kern
Mechanical Option
Advisor: **Dr. Treado**

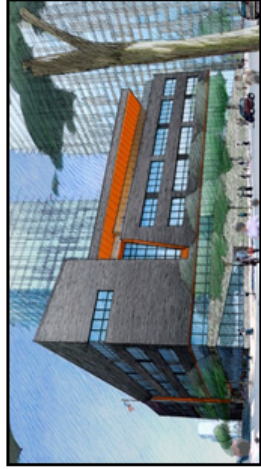
Outline

Introduction

- **Introduction**
- i. **Building Summary**
- ii. Existing Mechanical
- Proposed Redesign
- Mechanical Depth
- Breadth – Electrical
- Conclusion

Size: 153,769 sf
 Occupancy: IM/HS Schoolhouse
 Levels: 5 Stories/No Cellar/Penthouse
 Cost: \$61,098,000
 Construction Dates: Jan 10, 2011 to Oct 7, 2013

Project Team
 Architect: FXFOWLE Architects
 Structural: Ysreal/A. Seinuk
 MEP: Kallen & Lemelson
 CM: Skanska



Britt Kern

Hunter's Point South School

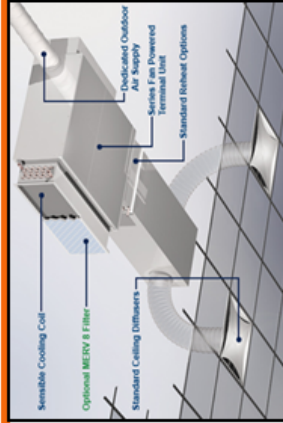
Mechanical Option

Outline

- Introduction
- Proposed Redesign
- **Mechanical Depth**
 - i. DOAS/Wheel
 - ii. **FPIU**
 - iii. Chillers/Loops
 - iv. CFD
 - v. Results
- Breadth – Electrical
- Conclusion

Mechanical Depth

- Remove FTR's
- Heating and Cooling Coils in FPIU's
- Better Room Control
- Optional MERV 8 filter – 1 LEED Point



Britt Kern

Hunter's Point South School

Mechanical Option

Outline	Mechanical Depth
<ul style="list-style-type: none">▪ Introduction▪ Proposed Redesign▪ Mechanical Depth<ul style="list-style-type: none">i. DOAS/Wheelii. FPIUiii. Chillers/Loopsiv. CFDv. Results▪ Breadth – Electrical▪ Conclusion	<ul style="list-style-type: none">• Current System:<ul style="list-style-type: none">a. (2) 276 ton chillersb. LWT 44°Fc. 1 Loop• New System:<ul style="list-style-type: none">a. Primary Loop<ul style="list-style-type: none">• (2) 225 ton chillers• LWT 44°Fb. Secondary Loop<ul style="list-style-type: none">• 33.5 ton chiller• LWT 58°F
Britt Kern	Hunter’s Point South School
	Mechanical Option

Electrical Breadth

- Introduction
- Proposed Redesign
- Mechanical Depth
- **Breadth – Electrical**
 - i. Roof Layout
 - ii. Equipment
 - iii. **Schematic**
 - iv. Payback Analysis
- Conclusion

Hunter's Point South School

Britt Kern

Mechanical Option