

Patrick Murphy
 Mechanical Option
 Advisor: Dr. Jelena Srebric
 March 9, 2007

AE Senior Thesis Presentation Outline

Topic	No. Slides	Appx. Time
Set-up	(0)	(1 min)
I. Title Page (Personal Introduction)	(1)	(0.25 min)
II. Introduction to Building	(3)	(1.25 min)
A. Building Location	1	
B. Video of Building Model	1	
1. Discuss Plan		
2. Discuss Functions/Program		
C. Describe Current Mech. Design	2	
III. Thesis Goals	(1)	(0.33 min)
A. Improve Energy Efficiency		
B. Improve Acoustics in Audiology Lab(s)		
IV. Thesis Investigations (Presentation Outline)	(1)	(0.33 min)
A. Chilled Beam Application		
B. Green Roof Application		
C. Energy Analysis		
D. Acoustics Analysis [Breadth #1]		
E. Structural/Construction Analysis [Breadth #2, tbd.]		
F. LEED Analysis		
G. Cost Analysis		
V. Chilled Beam Application	(5)	(2.75 min)
A. Active vs. Passive Chilled Beams, Selection	1	
1. Eliminate VAV Boxes		
2. Less Airflow		
3. Quiet Air Distribution		
4. Thermal Load		
B. Equipment Selected	1	
C. Suggested Layout	1	

Topic	No. Slides	Appx. Time
D. Implications on Mechanical System	2	
1. Now a DOAS System (Smaller Ducts)		
2. Increased Chilled Water Use		
3. Equipment (AHU, pump) Resizing		
4. New (OA) Filters		
VI. Green Roof Application	(3)	(2.0 min)
A. Intensive vs. Extensive, Occupied vs. Unoccupied	1	
B. Selection and Layout	1	
C. Implications on Building Design	1	
1. Energy Savings		
2. Acoustic Insulation		
3. Stormwater Management		
4. Increased Structure (?)		
5. Construction Issues (?)		
VII. Energy Analysis	(1)	(0.5 min)
A. Original Design		
B. New Design		
C. Comparison (Savings?)		
VIII. Acoustic Analysis [Breadth 1]	(3)	(1.5 min)
A. Goals		
B. Ambient Conditions, Green Roof Insulation	1	
C. Equipment Noise	1	
D. Final NC Rating	1	
IX. Structural or Construction (tbd.) [Breadth 2]	(?)	(1.25 min)
X. LEED Analysis	(1)	(0.5 min)
A. Original Design to LEED v.2.1		
B. New Design vs. LEED v.2.1, v.2.2		
C. Possible Silver Rating (?)		
XI. Cost Analysis	(5)	(2.5 min)
A. Additional First Costs		
1. Chilled Beam	1	
i. Ducts Downsized		
ii. Equipment Changes		

Topic	No. Slides	Appx. Time
iii. Diffusers		
iv. Maintenance Changes (?)		
2. Green Roof	1	
i. Plants and Materials		
ii. Maintenance		
iii. Structural Changes		
iv. Stormwater System Changes		
B. Savings	1	
1. Energy Savings		
2. Subsidies/Tax Breaks		
C. LCC Evaluation and Conclusions	2	
XII. Conclusions	(3)	(0.67 min)
A. Selected Design	1	
B. Pros and Cons	1	
C. Meets Goals?	1	
XIII. Acknowledgements	(1)	(0.25 min)
XIV. Questions	(1)	(5.0 min)
TOTAL:	appx. 32	20.0 min