Final Presentation Outline

Slide Count Summary

Introduction - 5

Depth - 9

Breadth 1 – Electrical - 4

Breadth 2 – CM - 4

Conclusions - 2

Total = 24 + appendix

I. Building Overview

Three slides for introduction to project

II. Existing Mechanical System

Two slides for exposure to existing mechanical system

III. Mechanical Depth Design

One slide to introduce proposed redesign

IV. Demand Control Ventilation

Two slides to explain investigation of demand control ventilation advantages

V. Mechanical Design Alternatives

Two slides discussing proposed design alternatives

VI. Energy and Cost Analyses

Four slides discussing energy & cost of design alternatives as well as final selection and system diagrams

VII. Breadth 1 – Electrical Study

Four slides to discuss analysis of a photovoltaic array

VIII. Breadth 2 – CM Study

Four slides to discuss highlights of construction management study

IX. Conclusions

One slide to reiterate design selection and recommendations

X. Acknowledgements

One slide

XI. Appendix

Additional Slides For Reference – number to be determined at a later date.

*Sample Slides from the presentation follow for reference.

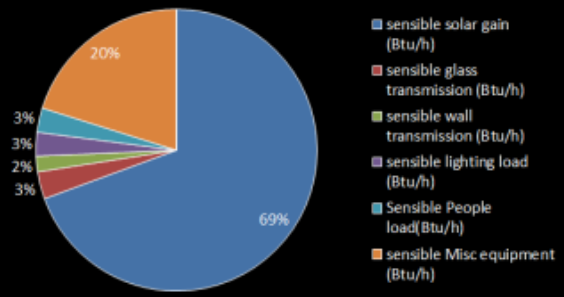
Schedule

Building Overview
Existing Mechanical System
Mechanical Depth Design
- Demand Control Ventilation
- Mechanical Design Alternatives
- Energy & Cost Analyses

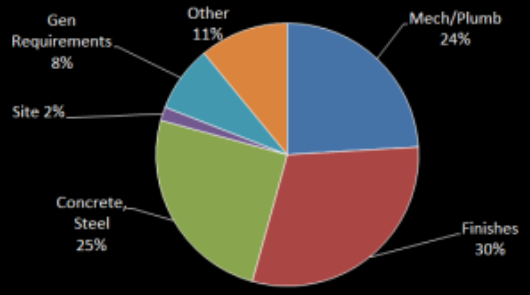
Breadth 1 – Photovoltaic Array Study
Breadth 2 – CM Study
Conclusions
Acknowledgements

Laura Pica – Mechanical Option - Adviser – Stephen Treado

Building Loads



Project Cost Breakdown



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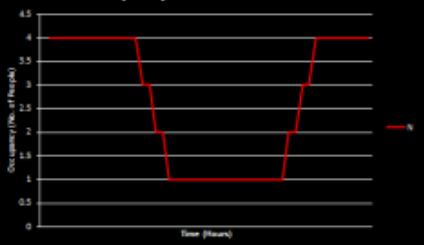
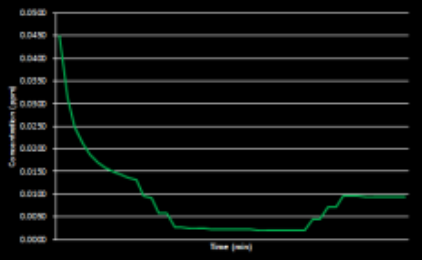
Demand Control Ventilation

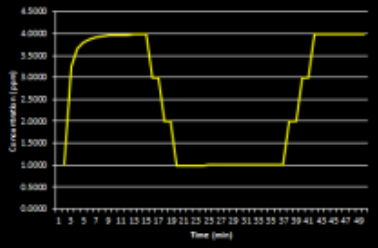
Occupancy Over 24 Hour Period



Natural Ventilation with Constant ACs



Demand Control Ventilation



$$c(t+\Delta t) = c(t) * e^{(-n*\Delta t)} + (\underline{cb} + (N*q)/(n*V)) * (1-e^{(-n*\Delta t)})$$

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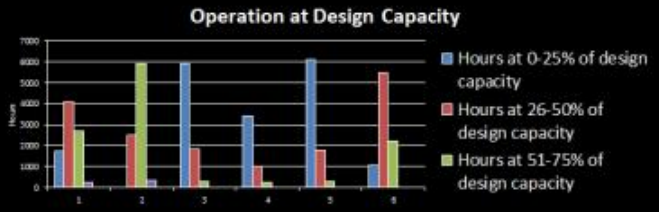
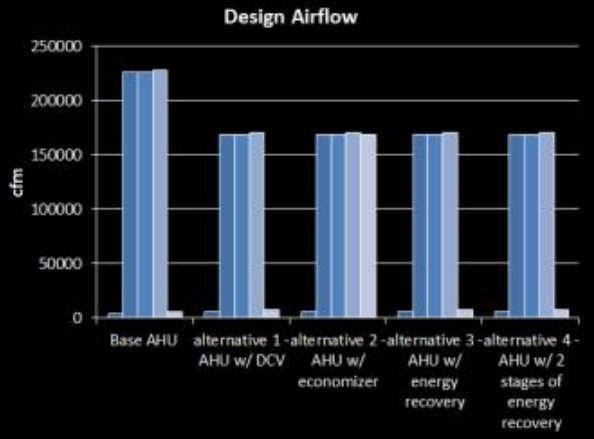
The four design alternatives studied

- Base AHU
- AHU w/ DCV
- AHU w/ DCV and Economizer
- AHU w/ DCV and 1 Stage of Energy Recovery via Fixed Plate HX (OA Preconditioning)
- AHU w/ DCV and 2 Stages of Energy Recovery: Fixed Plate HX & Runaround Coil Loop





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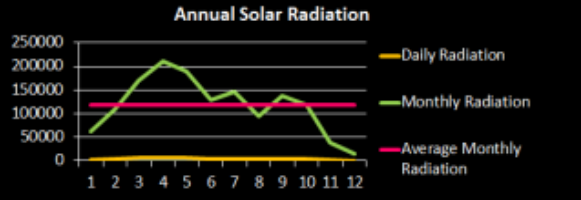

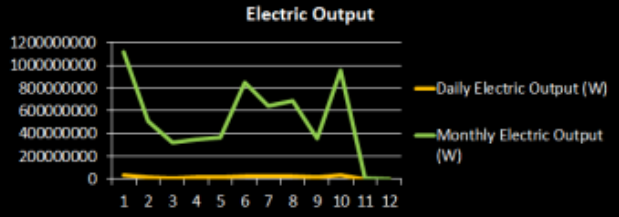

β	Monthly Electric Output
0	1.401E+18
5	1.389E+22
10	9.904E+20
15	4.487E+20
20	1.722E+20
25	3.564E+20
30	1.177E+24
35	1.044E+21
40	6.104E+20
45	3.497E+20