

THE MOORE BUILDING ADDITION
UNIVERSITY PARK, PA 16802



MOHAMMAD ALHUSAINI
CONSTRUCTION MANAGEMENT

PRESENTATION OUTLINE

- INTRODUCTION
 - PROJECT BACKGROUND
 - THE THEME
 - PRESENTATION OVERVIEW
- ANALYSIS I
- ANALYSIS II
 - MECHANICAL BREADTH
- ANALYSIS III
- ANALYSIS IV
- CONCLUSIONS
- ACKNOWLEDGEMENTS & THANKS

ASBESTOS

WHAT IS ASBESTOS?
FRIABLE VS. NON-FRIABLE
DOES IT HAVE TO BE REMOVED?

COST OF REMOVING ASBESTOS FROM
NORTH WING: ~\$350K

ANALYSIS I: DEMOLITION

NORTH WING

16,000SF
SELECTIVE DECONSTRUCTION
STRUCTURALLY INDEPENDENT OF ADDITION
CONTAINS ASBESTOS

CALENDAR DAYS REQUIRED FOR ASBESTOS ABATEMENT
AND SELECTIVE DEMOLITION: **103 Days**

SELECTIVE DEMOLITION

WILL OCCUR ON NORTH WING
CANNOT BEGIN BEFORE ASBESTOS ABATEMENT

COST OF SELECTIVE DEMOLITION ON NORTH
WING: ~\$280K

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STRUCTURAL BREADTH

PERFORMED HAND CALCULATION
PERFORMED STAAD ANALYSIS
REALIZED LOAD IMPLICATIONS
BENDING MOMENTS AND DEFLECTIONS IN REPORT
PRECAST PANELS HAVE NO ILL EFFECT ON STRUCTURE

ANALYSIS II: FAÇADE

MECHANICAL BREADTH

ENERGY SAVINGS

Energy Through Façade Systems					
	$q = 0.1059 \cdot 121055F \cdot 32,044$	BTU/h	279,900,0	BTU/year	
Brick Façade	25 F		00		
	$q = 0.0769 \cdot 121055F \cdot 23,251$	BTU/h	203,100,0	BTU/year	
Precast Façade	25 F		00		
		Difference	76,800,00	BTU/year	
			22,500	kWh/year	

50.1026, 1/with Commercial 2010 Data Cost Saving = 32,500*0.1026 = 3,335 \$/year

R VALUES (COLORADOENERGY)

Material	R & U Values for Different Systems		
	R Value/inch	Brick Façade	Precast Façade
Concrete	0.08	0.00 (0")	0.40 (5")
Brick	0.11	0.44 (4")	0.11 (1")
Air Film	1.00 (0.5" - 4")	1.00 (2")	0.00 (0")
Rigid Insulation	4.00	8.00 (2")	0.00 (0")
Polyurethane Insulation	6.25	0.00 (0")	12.50 (2")
	Sum of R Values	9.44	13.01
	U Value (1/R)	0.1059	0.0769 BTU/(h ² * F * h)