



WILKES-BARRE/SCRANTON INTERNATIONAL AIRPORT
AVOCA, PA

ADAM G. WEIS CONSTRUCTION MANAGEMENT OPTION
2006 SENIOR THESIS PRESENTATION

CONTENTS

- Building Overview
- 4D Research
- 4D Application
- Structural Breadth
- Mechanical Breadth



BUILDING INFORMATION

- Size – 127,000 sqft
- Cost - \$30 Million
- Contract – CM Agency
- Construction Manager
 - Turner Construction
- Architect
 - HNTB

<u>FLT</u>	<u>STAT</u>
Info	BRD
4D Rsch	DEL
4D Mdl	DEL
Str Bdt	DEL
Mec Bdt	DEL

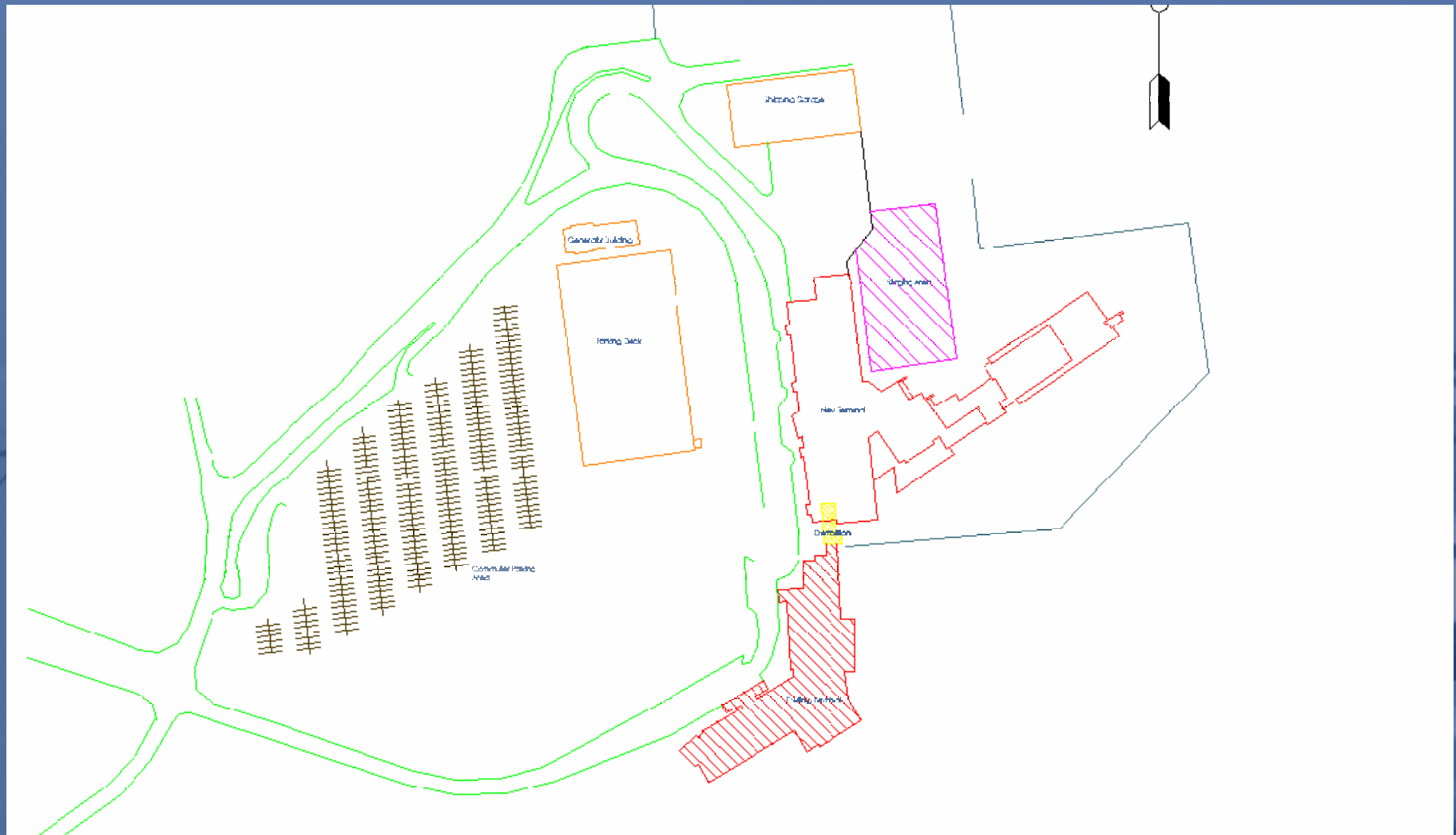
BUILDING INFORMATION

<u>FLT</u>	<u>STAT</u>
Info	BRD
4D Rsch	DEL
4D Mdl	DEL
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Mec Bdt	DEL

- Architecture
 - Transitional Sandstone Walls
 - Cable Trusses
 - Eight Gates
- Structure
 - Steel Columns on Spread Footings
 - Composite Floor Slabs



SITE LAYOUT



4D RESEARCH

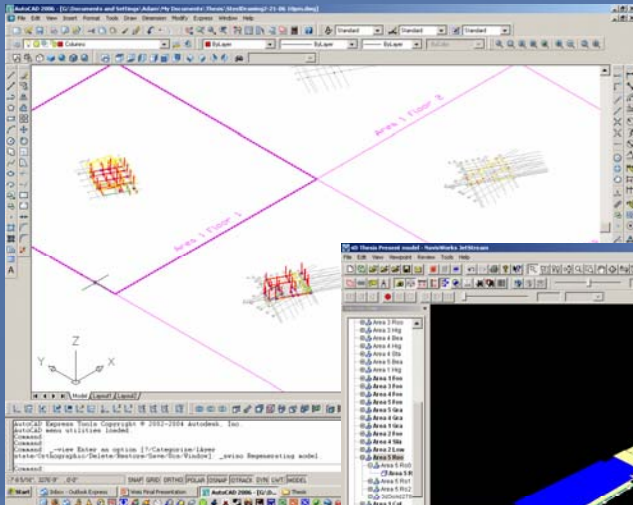
- PACE
- Interviews
 - Real World Application
 - Why aren't companies using 4D?

<u>FLT</u>	<u>STAT</u>
Info	DEP
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4D Mdl	DEL
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Mec Bdt	DEL

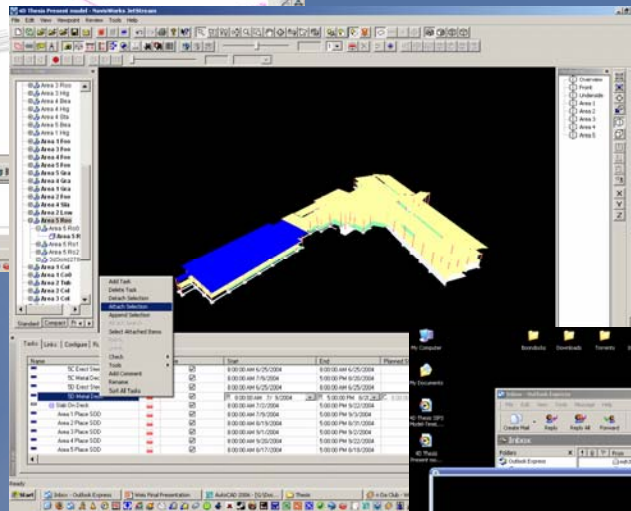


4D MODELING AS BUILT SCHEDULE

<u>FLT</u>	<u>STAT</u>
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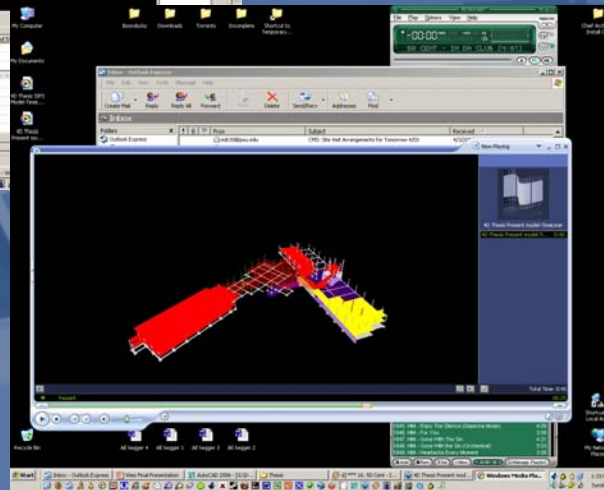


Developed model from 2D plans

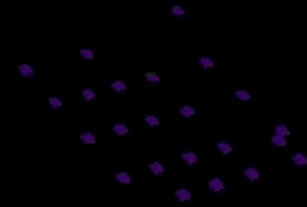


Imported model to NavisWorks Jet Stream

Reviewed animation to develop a better schedule



4D AS-BUILT ANIMATION



4D MODELING

SIPS SCHEDULING

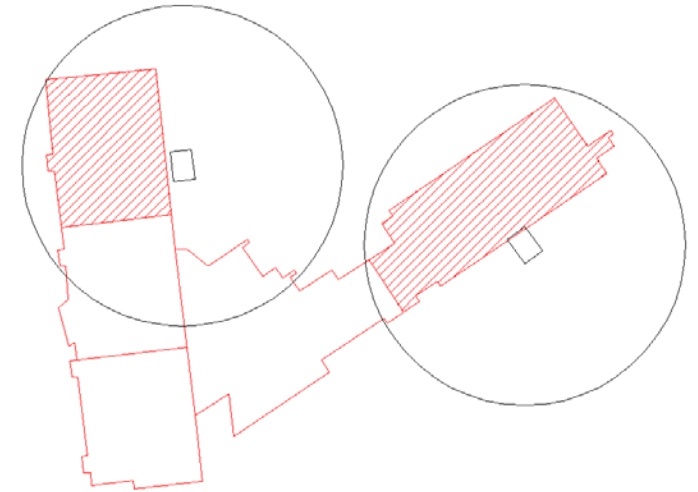
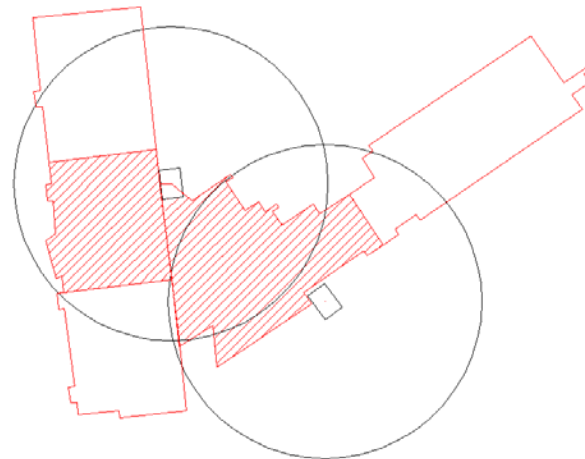
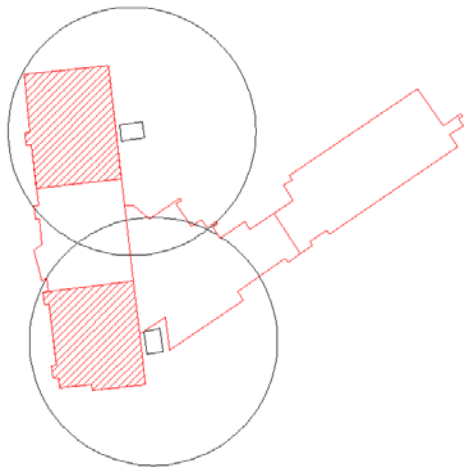
- Activity Identification
- Flow of trades
- Used durations from as-built schedule
- Turned into compressed schedule

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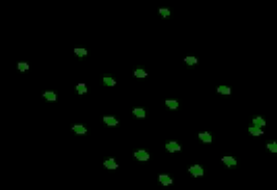


CRANE MOVEMENT

<u>FLT</u>	<u>STAT</u>
Info	DEP
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Mec Bdt	DEL



4D SIPS ANIMATION



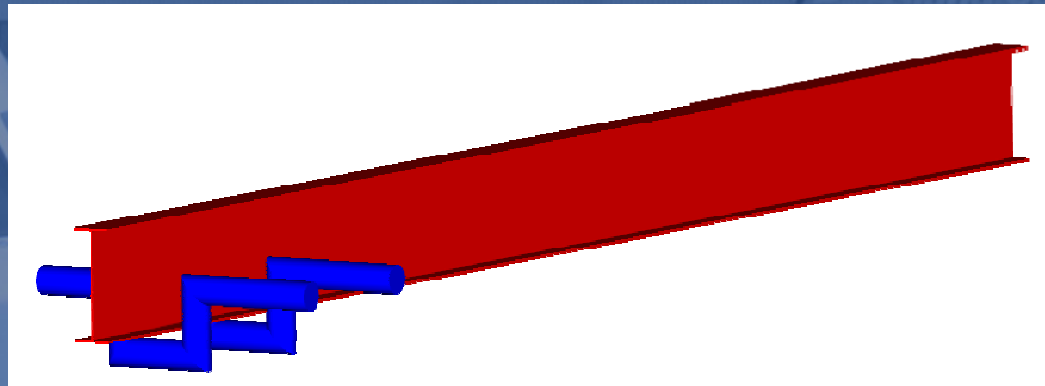
Friday 8:00:00 AM 12/5/2003 Day=1 Week=1



STRUCTURAL BREADTH

- Floor beam lintel
- Lintel lowered due to HVAC ducts
- Punch through the beam to prevent lowering of lintel

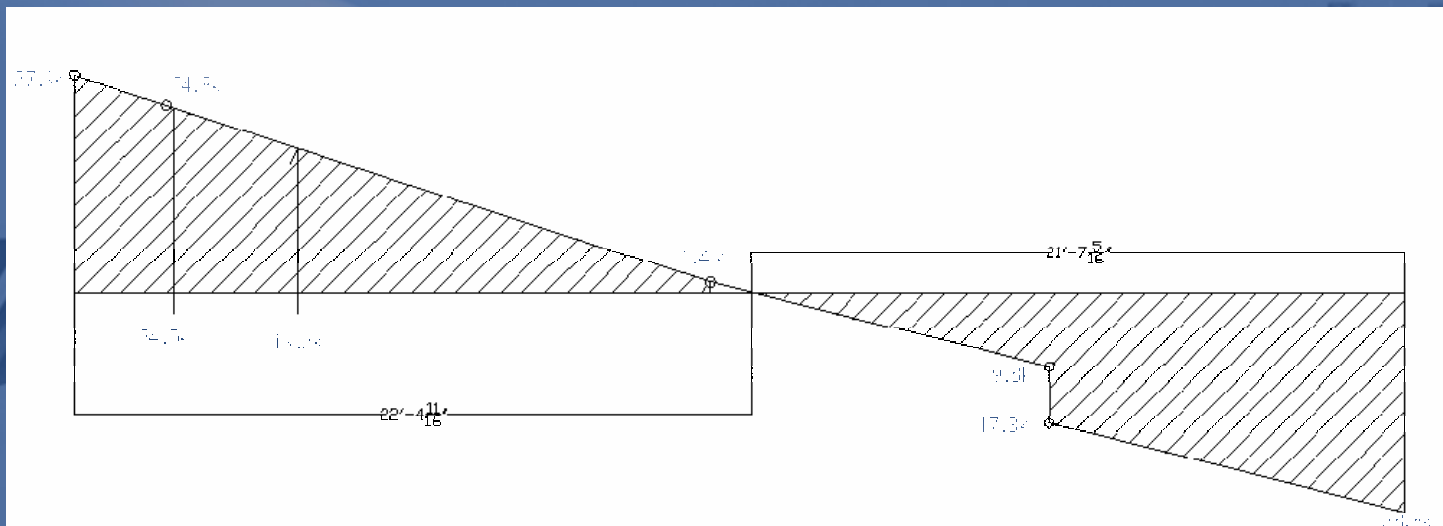
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STRUCTURAL BREADTH

- Determined where shear is equal to zero
- Analyzed shear capacity of web
- Discussed web issues with job engineer

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MECHANICAL BREADTH

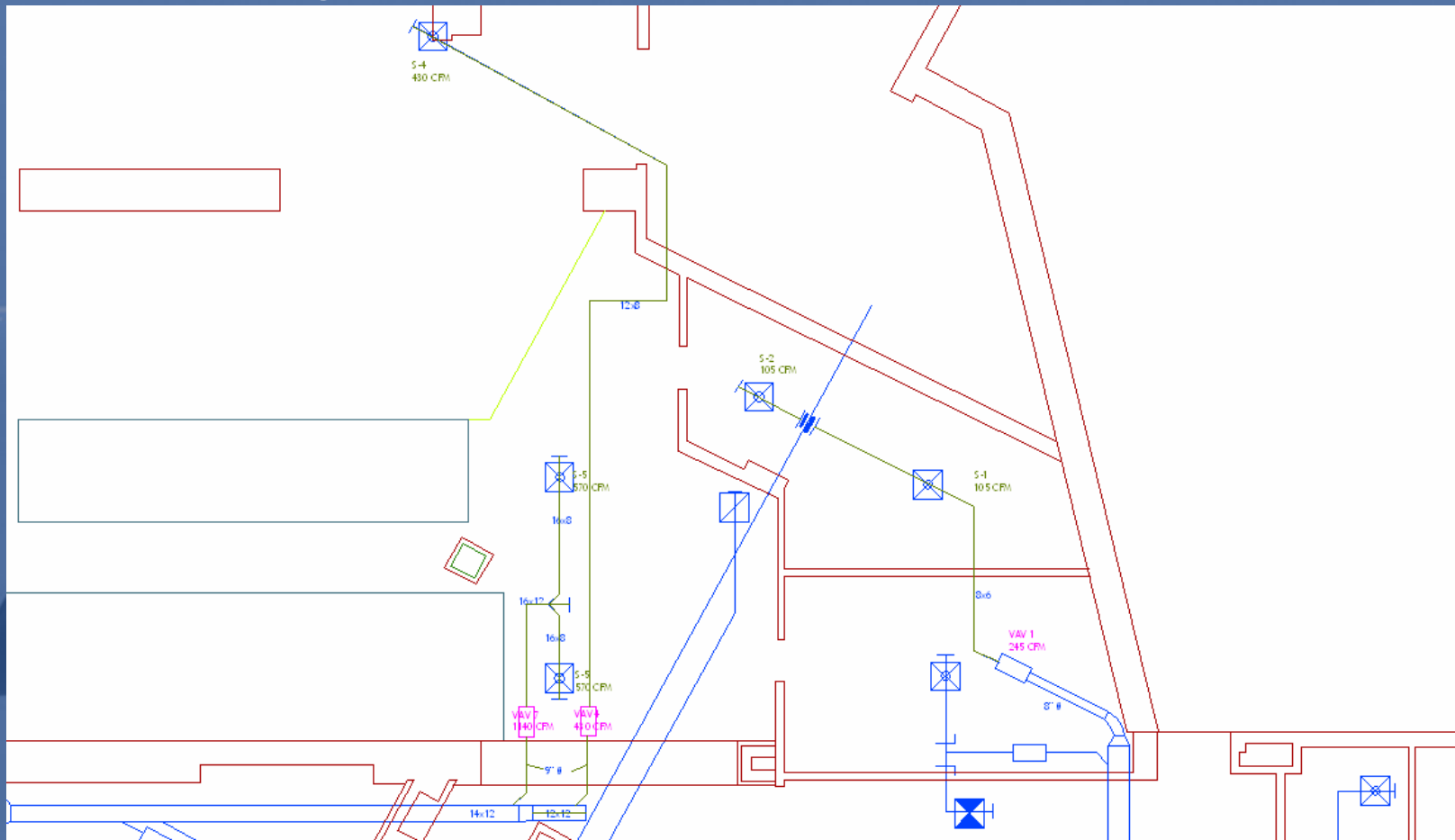
- Re-route ducts
 - Center of beam
 - Switch rooftop units
- Transfer loads

<u>FLT</u>	<u>STAT</u>
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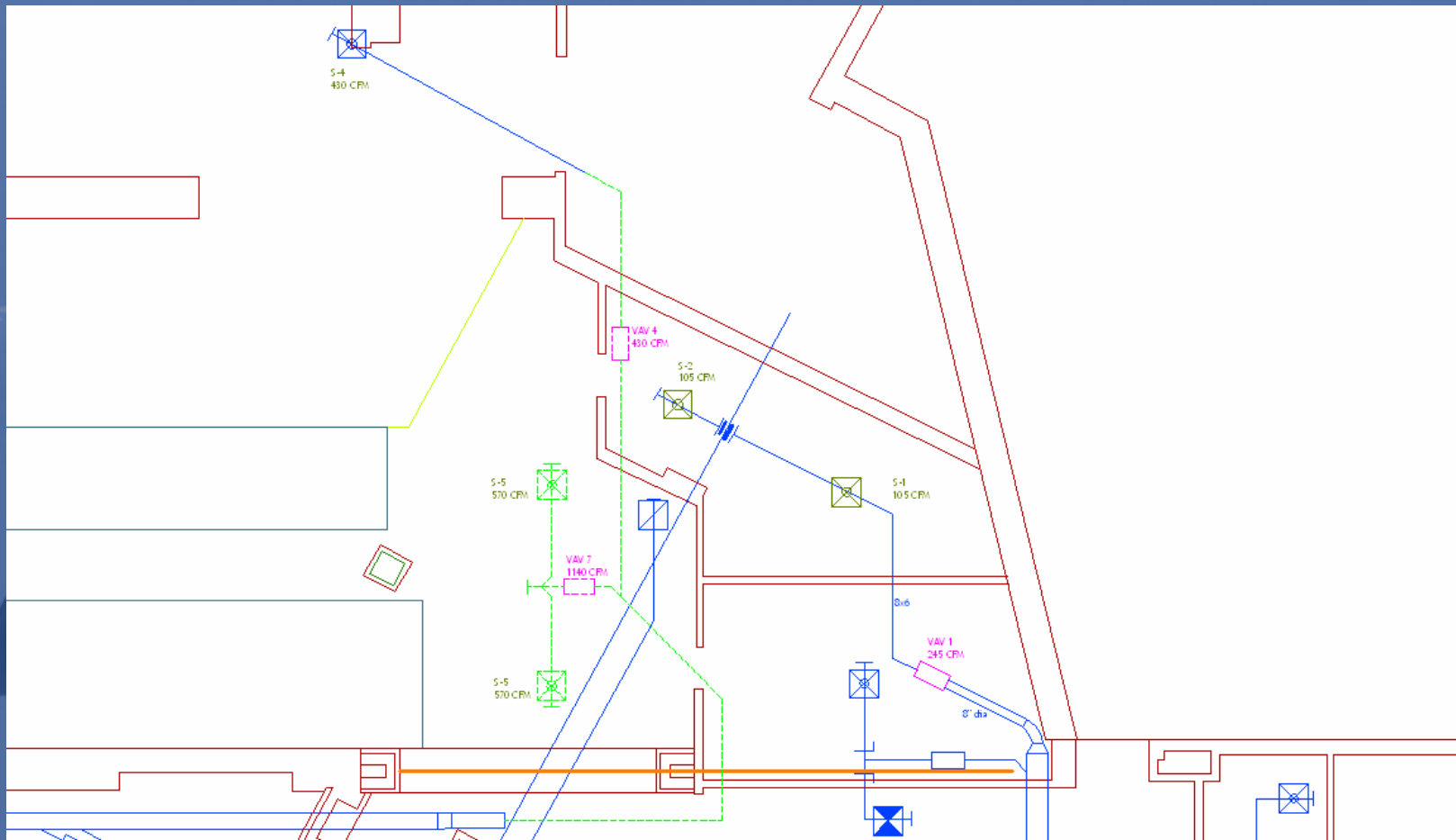
MECHANICAL BREADTH

Current Layout



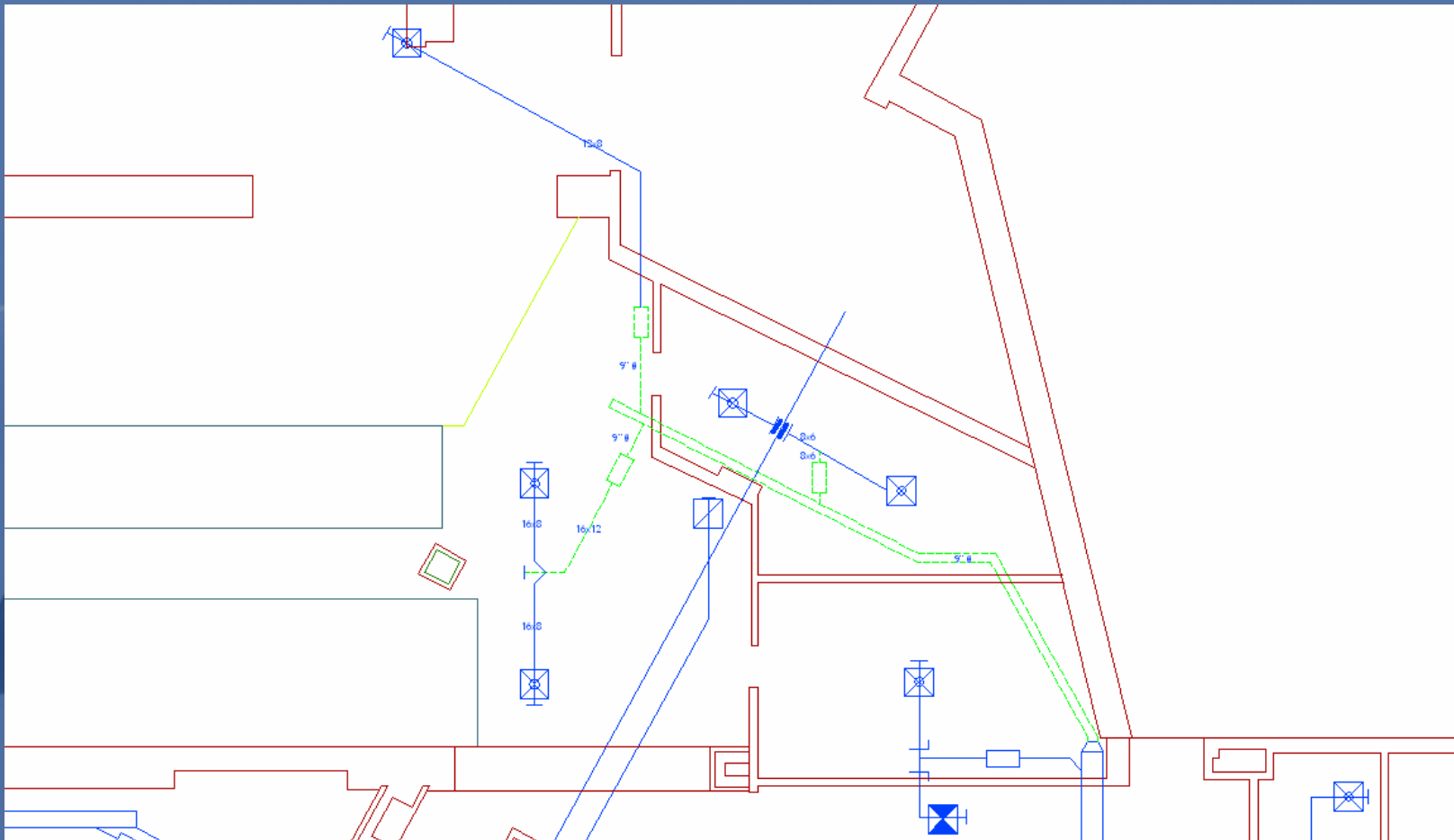
MECHANICAL BREADTH

Re-route with center punch



MECHANICAL BREADTH

Transfer loads and duct to new rooftop



MECHANICAL BREADTH

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Original Plan	
Total Weight (lbs)	1163.9
Cost	\$7,099.80
Punch Through	
Total Weight (lbs)	1259.1
Cost	\$7,680.38
Off Another Rooftop	
Total Weight (lbs)	1055.1
Cost	\$6,435.81

Transfer loads
to another
rooftop!

ACKNOWLEDGEMENTS

- Turner Construction
- Bi-County Board of the Wilkes-Barre/Scranton International Airport
- AE Staff
- All those that took the time to answer my questions for my survey
- Classmates

Questions?

