



# ORANGE REGIONAL MEDICAL CENTER

Middletown, New York

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Structural Option  
AE 482 – Senior Thesis  
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## Presentation Agenda

Introduction

Proposal

Structural Depth

Design Process

Results

**Flat Slab**

Construction Management Breadth

Conclusions

## Reinforcement

MIDDLE STRIP

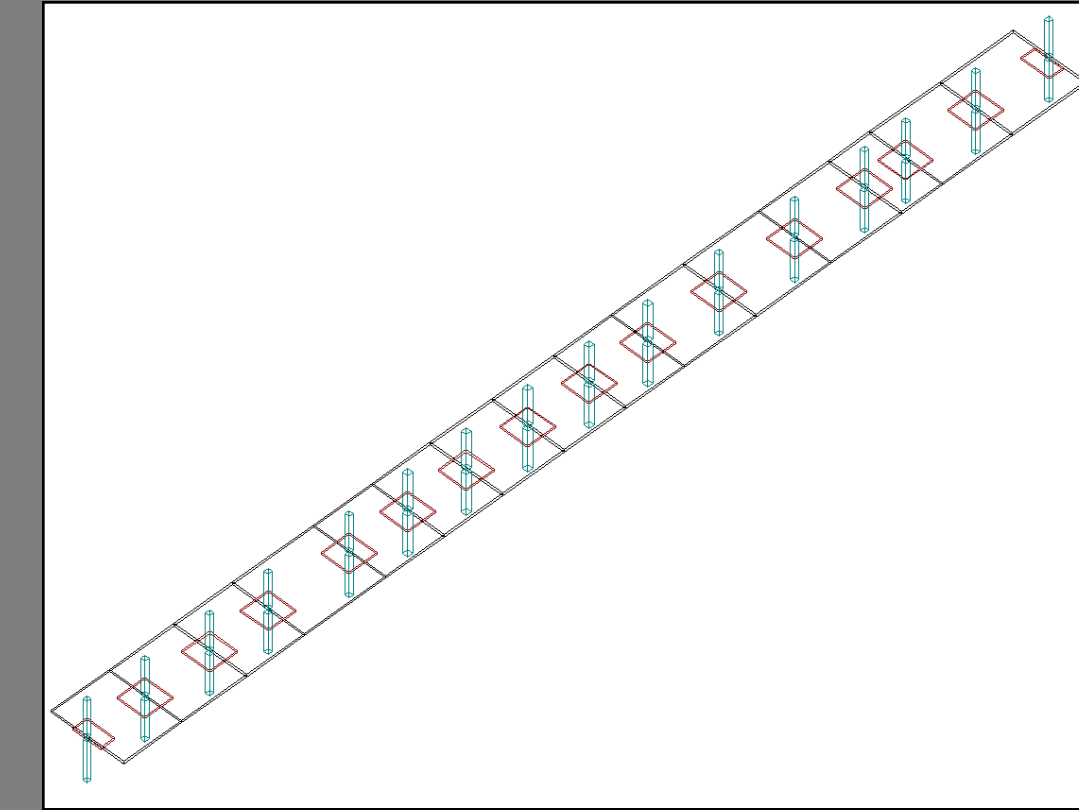
(13) # 5's @

( 9) # 5's @

[Transverse]

COULMN STRIP

(29) #5's @



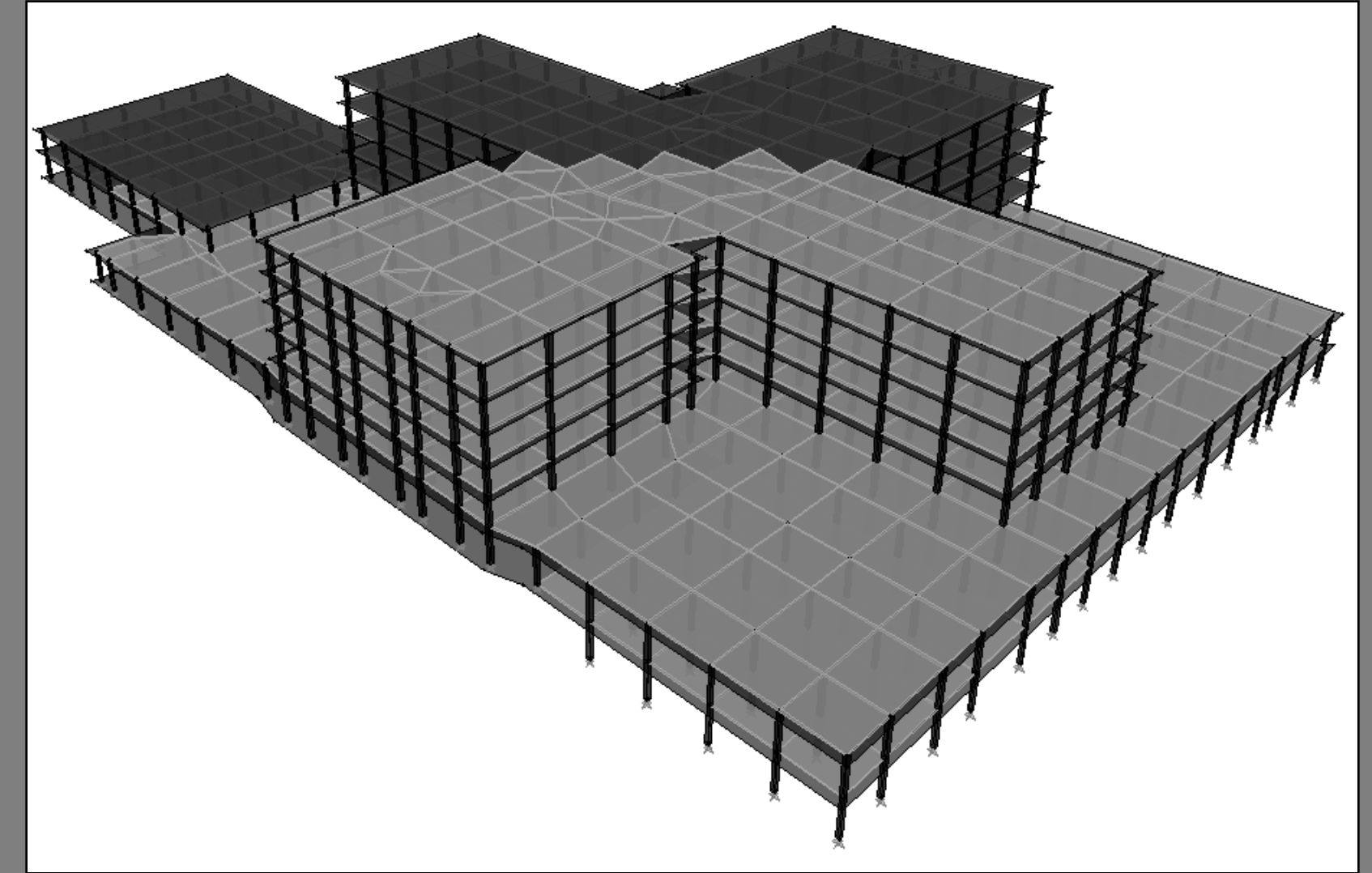
Typical Slab Along Interior Column

## Presentation Agenda

- Introduction
- Proposal
- Structural Depth
  - Design Process
  - Gravity
  - Lateral**
- Results
- Construction Management Breadth
- Conclusions

## Lateral Analysis

- Determined seismic as the controlling lateral force
- Checked Drift Values
- Found overturning moment and its impact on foundations



ETABS Model of concrete moment frames

## Presentation Agenda

Introduction  
Proposal  
Structural Depth  
Construction Management Breadth  
**Cost Analysis**  
Construction Schedule  
Conclusions

## Cost Analysis

EXISTING STEEL STRUCTURE:  
\$ TBD

REDESIGNED CONCRETE FLAT SLAB SYSTEM:  
\$ TBD

Total Steel Beam and Column Costs				
Size	Quantity	Length (ft)	Cost	Total
W10x12	23	361.6		
W12x14	7	121.5		
W12x19	2	44		
W14x22	27	569		
W14x30	5	90		
W16x26	180	4444		
W16x31	81	2076.66		
W16x36	5	125.33		
W18x35	35	797.66		
W18x40	25	685.66		
W21x19	16	312		
W21x44	28	655		
W21x50	15	357.66		
W21x57	2	47.66		
W24x55	36	859.66		
W24x62	2	55		
W24x76	5	150		
W27x84	1	32		

Steel Take-off  
Costs