



Senior Thesis Program
The Department of Architectural Engineering
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Breadth Analysis: Construction Management
Ideas and suggestions for breadth analysis in Construction Management
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Constructability of re-design

- ☐ General reality checks
- ☐ Improvement in construction methods
- ☐ Reduction of construction waste
- ☐ Rigging and sequence of long span elements
- ☐ Reduction of field labor
- ☐ Improved safety
- ☐ Increased use of recycled materials

In-Depth Cost and Schedule impacts of re-design systems

- ☐ Not just Means
- ☐ Comparative case studies / (sub) contractor input
- ☐ Assembly Estimates
- ☐ Actual supplier/vendor quotes

Construction Management

- ☐ Site Layout Plan for a congested site
- ☐ 3D – 4D animation of construction sequence
- ☐ Detailed analysis of organizational structure / subcontracts (e.g. design-build)
(Compare with a similar project)

Option Specific Ideas

Structures: Detailed steel construction sequence and crane positioning
Impact of connections on field welding and prefabrication
Construction Load calculations
Formwork design and cost analysis
Earth retention system design

Mechanical: Impact of redesign on coordination of systems – does it take less room?
Impact of a design-build subcontractor
Reduction or simplification of system tests and commissioning requirements
Modular / manifold designs that foster prefabrication
Temporary ventilation system design

Electrical Impact of redundant systems on construction sequence
Contracting structure of telecommunication and data: design/construction
Impact of a design-build subcontractor
Temporary power design

Lighting Reduction in number of types of fixtures / vendors
Detailed analysis of fixture cost vs. energy savings
Reduction in ballast / wiring requirements
Use of labor-saving conduit/materials
Temporary lighting design