

CVEN 4830 SENIOR DESIGN FALL 2008

Construction Engineering

The construction engineer's role is to interface with design team members to evaluate project cost, schedule, constructability, sustainability and that over-all needs of the client are met. CEM faculty will be available during specific classes and office hours to support each team as they work through this project assignment.

Preliminary Stage

Due date: Thursday September 18

Group Activities:

- Constructability feedback on design options
- Discuss optional building materials including recycled sustainable products

Deliverables:

- Prepare a preliminary cost budget from schematic design (Utilize RS Mean SF Cost Data as resource)
- Develop a list of perceived project constraints and challenges (1 -2 page submittal)
- Determine key construction milestone dates i.e. contract award, start date, dried in, finish date, etc. (1-2 page submittal)
- Develop a detailed list of construction activities for the entire building (Note: these activities will be used to populate the schedule and cost estimate later)

Intermediate Stage

Due Date: Thursday October 30

Group activities:

- Discuss drainage/storm water runoff design options
- Discuss schedule in more detail
- Discuss site logistics and constructability of design

Deliverables:

- Develop a parameter estimate for entire building (Utilize RS Means Assemblies Cost Guide as a resource). You can build your own spreadsheet in Excel for the data. There are samples in RS Means to work from.
- Develop a preliminary bar chart schedule using a common industry software package you are familiar with.
- Develop a detailed construction site plan using CAD.
- Recommend a crane to service material lifts/handling during construction. Provide narrative of assumptions including range and load calculations.

Final Stage

Due Date: Thursday December 11

Deliverables

- Finalize project schedule. You may use any format or software as long as you delineate precedence between activities.
- Provide a narrative (5 page maximum double spaced) summarizing the sustainable building practices you will employ on this project.
- Assume the structural steel erection will be subcontracted and prepare a detailed subcontract and subcontractor prequalification statement. Use AGC documents # 603 and 621.
- Perform a quantity survey of final foundation design. Quantity survey will include items such as SF of formwork, CY concrete, number of embedded items, number of penetrations/type, lbs of reinforcing steel by size, etc. No pricing is required for this deliverable.