The UW Capital Projects Office and NW Construction Consumer Council

Present:

“Changing Project Delivery at the UW through Innovation, Integration, and Adoption of MC/CM and EC/CM”

PACCAR Hall, the Gordon Kloft Classroom
June 22, 2011
Case Study and Panel Discussion: MC/CM & EC/CM – Part 3

UW Bothell
1. UWB3 MC/ECCM Delivery Overview
2. UWB3 Mechanical Case Studies and Discussion
3. UWB3 Electrical Case Studies and Discussion
4. MEP Panel Q & A Session
UWB – MC/ECCM Delivery Overview

- Troy Bloedel – Lease Crutcher Lewis
What is MC/ECCM?
Mechanical Contractor as Construction Manager
Electrical Contractor as Construction Manager

New Alternative Delivery model within the GCCM delivery which allows early selection of MEP subcontractors for providing input during preconstruction phase of the project
CPARB Sponsored Continuing Education

GCCM – MCCM – ECCM delivery method

AGC Education Foundation
Erica Peterson
T: (206) 442-9029
F: (206)-442-9364
Alternate to RCW 39.10.380, which provides the low bid subcontractor selection process

- If M or E anticipated value of the subcontract is over $3 million

- “Early in the life of the project” (how early is early?)
UWB – MC/ECCM Selection Process

(1) Determination

GCCM and Public Body = this process is “in the best interest of the public”

What is “the best interest of the public”? 
UWB – MC/ECCM Selection Process

(a) Provide notice of intent to use the procedure and establish a hearing date.

- Publish in legal newspaper
- Justify the need *(a few lines)*
- Describe how to obtain the draft request for proposals *(email or website)*
UWB – MC/ECCM Selection Process

(b) Conduct a hearing.

- Review Justification and Evaluation Criteria
- Provide an opportunity for written and verbal comments.
UWB – MC/ECCM Selection Process

(c) Consider the comments and determine if process is still in the best interests of the public.
UWB – MC/ECCM Selection Process

(d) Issue a written final determination (including final RFP).

- Revise RFP to incorporate accepted comments
UWB – MC/ECCM Selection Process

The public solicitation of proposals must include:

(d) A description of the selection process
   - Evaluation factors
   - Weight of factors *(points)*
The public solicitation of proposals must include:

(e) The form of the contract, including pre-con services requirements
(f) The estimated maximum allowable subcontract cost
(g) Bid instructions
UWB – MC/ECCM Selection Process

(3) Evaluation Factors for selection of the subcontractor must include, but not be limited to:

• Assign points to each one of these based on the project
UWB – MC/ECCM Selection Process

Evaluation Factors

(a) Ability of the firm’s professional personnel.
*Ask for resumes of PM and Superintendent.*
*Be clear about the expectations and skills.*

(b) The firm’s past performance on similar projects.
*How to evaluate “performance”*
  - *Fair*
  - “Responsible”
Evaluation Factors

(c) The firm’s ability to meet time and budget requirements.

Recommend asking the firms to “demonstrate” competency.
Evaluation Factors

(d) Self-performed work

What is this? The work performed by employees of the firm. How is effectiveness evaluated.

(e) Outreach to minority-and women-owned businesses.

- Plan or
- Evidence of a plan
UWB – MC/ECCM Selection Process

Evaluation Factors

(f) The firm’s proximity to the project.

*How important is this?*

(g) The firm’s capacity to successfully complete the project backlog.

- *Discuss different approaches.*
- *Concerns about the level of financial information requested.*
UWB – MC/ECCM Selection Process

Evaluation Factors

(h) The firm’s approach to executing the project.

*What ideas do they have? Be specific about particular challenges, like bidding out subcontracts.*

(i) The firm’s approach to safety summary, not safety manual.

*Any particular concerns, rigging, lifting, crane, confined space.*
UWB – MC/ECCM Selection Process

Evaluation Factors

(j) The firm’s safety history.

*EMR, Incidence, average, over/under.*
*Concerns about EMR metrics.*

(k) The fee and cost proposal.

- Not a “lump sum bid of MACC” –
  - *Misconceptions*
  - “General Conditions”
  - “Profit” or “Margin”
UWB – MC/ECCM Selection Process

(4) Proposal Evaluation

- Establish committee
- Final proposals including percent fee and general conditions
- Indicates a 2-step process
- Part 1 Short-List Most Qualified Firms
- Interview (?) part of Step 2
- Select the firm with the highest scored final proposal
- Provide “Part 1 scoring” before opening “Part 2”
<table>
<thead>
<tr>
<th>Task Criteria</th>
<th>Weighting Factor</th>
<th>HERMANSON COMPANY</th>
<th>MACDONALD-MILLER</th>
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<tr>
<td>Interview</td>
<td>30</td>
<td>27</td>
<td>17</td>
<td>22</td>
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</tbody>
</table>

| EMACC         | $5,900,000      |                    |                   |           |

**11.0 Final Proposal**

| 11.1 Contractor’s Fee Percentage | 7.05%  | 8.46%  |
| 11.2 Contractor’s Fee Amount    | $423,000 | $387,800 |
| 11.3 Specified General Conditions | |
| Mobilization and Initial Site Work Phase | Monthly Dollar Amount | Monthly Dollar Amount | Monthly Dollar Amount | Duration (months) |
| $26,500 | $19,917 | $15,022 | 2 | $53,000 | $39,834 |
UWB – MC/ECCM Selection Process

(8) **Total Subcontract cost =**

- Subcontract MACC + Specified General Conditions +
- Percent Fee
- Subcontract MACC = cost of work including self-performed work + contingency + negotiated support services + change orders
- Documents must be 90% complete – why?
- Public Body Approves
### ATTACHMENT 1 – SUMMARY MATRIX OF COST ALLOCATION

<table>
<thead>
<tr>
<th>MC/CM ITEM</th>
<th>Document Reference</th>
<th>MC/CM Fee</th>
<th>MC/CM Specified General Conditions</th>
<th>MMACC</th>
<th>GC/CM</th>
<th>Owner</th>
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(9) **Savings** goes to GC; over-runs are on subcontractor.

Independent audit – *how robust of an audit?*
UWB – MC/ECCM Selection Process

(10) Subcontractor can self-perform work

Set up a system to verify the estimate
Otherwise must subcontract out *in accordance* with
the low bid 380.

*How do subcontractors plan to execute bid packages?*
## MC/ECCM Selection Process Outline Schedule

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<tr>
<th>ID</th>
<th>Task Name</th>
<th>Duration</th>
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<th>Finish</th>
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<th>Qtr 4, 2010</th>
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<td>MC/ECCM Selection Process</td>
<td>101 days</td>
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<td>May</td>
<td>Jun</td>
<td>Jul</td>
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<td>Incorporate Comments - Finalize Criteria</td>
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**Diagrams:**
- MC/ECCM Subs
- Team
- Lewis
UWB – Mechanical Case Studies & Discussion

- Brett Magnuson – UW Facility Services
- Len Klein – GLUMAC
- Dave Nehren - Hermanson
Early Integration works!

- Team-work atmosphere
- Constructability Issues discussed as design evolved
- Cost (VE) ideas put forth as design evolved
- Client/users better informed of issues and decisions – fewer surprises
- Projected decrease in substitutions requests, and RFI’s
Data Center HVAC: System Types

- Initial Approach: Chilled Water AHU with Traditional Space Temps
UWB – Server Room

- Data Center HVAC: System Types

  - What if we could have....:
    - Greener approach
    - Reduced carbon footprint
    - Greater reliability
    - More energy efficient
    - More cost effective
    - Improved maintainability
Data Center HVAC: System Types

Alternate Approach: Evaporative Cooling with Elevated Space Temps
Data Center HVAC: System Types

- Alternate Approach: Evaporative Cooling with Elevated Space Temps
Data Center HVAC: Elevated Space Temps

FIGURE 1. ASHRAE environmental specifications.
Data Center HVAC: System Types

- What questions need to be resolved to validate this approach?
  - Is it proven?
  - Comfort level?
    - End User
    - Facilities Staff
- How do you train the end user and facilities staff?
- Do we gain all the previously mentioned benefits?
Data Center HVAC: System Types

- What questions need to be resolved to proceed?
  - Is it proven?
  - Comfort level?
    - End User
    - Facilities Staff
  - How do you train the end user and facilities staff?
  - Do we gain all the previously mentioned benefits?

- Final decision: All the stakeholders bought into this alternate concept (Designers, Builders, and Owner)
Q: How do we make it even better?
UWB – Server Room

- System Location: Initial
- System Location: Final
Data Center HVAC: Value Added

- Cost
- Other Benefits:
  - Improved Maintainability
  - Improved Energy Efficiency
  - More Centralized Equipment
  - Improved Reliability

- A more sustainable solution......for less money
UWB – Electrical Case Studies & Discussion

- Brett Magnuson – UW Facility Services
- Judi Ebmeyer – GLUMAC
- Tim Nelson – Nelson Electric
UWB – Generator

What loads would the generator serve?

- No Code required for this building
- Egress Lighting
- Server Room
- HVAC Equipment for the Server Room
- Fume Hoods in Labs for Research
- Cold Room (Walk in Cooler)
- Fire Alarm Control Panel
- Security Panel
- Elevator(s)
- This building and future building(s)
What size should the generator be? 900 kW or 750 kW (smaller generator $95,000 savings)

What is the real load at build-out for the Server Room?
What is the HVAC load associated with the Server loads?
Is it dedicated to this building or to future buildings as well?
What can the budget handle?
Where should the generator be located?
Current Location Adjacent to New UW3 Building
In the Parking Lot across NW 180th St.

Additional 350 feet of feeder: + $54,000
Adjacent to the UW2 Transformer

Additional 195 feet of feeder: + $23,000
At the Physical Plant

+ $200,000 for Generator/Transformer package

Adjacent to the UW2

To Physical Plant
Optimizing Lighting Controls
- Designer/Contractor working together
  - Understanding local energy codes
  - Perform cost analysis
    - Code requirement vs. desire vs. cost
    - Eliminated dimming zones ($36,000)
- User feedback
  - Control and reporting through DDC keeping a familiar format
UWB – Light Fixtures

- Light Fixture Selection
  - Understanding design concept
    - Offer alternate product selection during design process, not submittal process
    - Retain open spec
    - CFL vs LED
  - User feedback
    - Reducing lamp types
    - Maintainability – Stairwells, high ceilings
UW Bothell – Panel Format Q&A Session