

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

UWB – MC/ECCM

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

UWB – MC/ECCM

- CPARB Sponsored Continuing Education

GCCM – MCCM – ECCM delivery method

AGC Education Foundation

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UWB – RCW 39.10.385 – Alternate Subcontractor Selection Process

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*)

UWB – MC/ECCM Selection Process

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”*

UWB – MC/ECCM Selection Process

Evaluation Factors

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

Recommend asking the firms to “demonstrate” competency.

UWB – MC/ECCM Selection Process

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”

UWB-3
MCCM Selection

LEASE CRUTCHER Lewis						MCCM		
	Weighting Factor	HERMANSON COMPANY	MACDONALD-MILLER	MCKINSTRY		HERMANSON COMPANY	MACDONALD-MILLER	MCKINSTRY
9.0 Written Proposal	50					41	40	40
10.0 Interview	30					27	17	22
EMACC \$6,000,000								



11.0 Final Proposal									
7.00%	11.1	Contractor's Fee Percentage						7.05%	6.46%
\$420,000	11.2	Contractor's Fee Amount						\$423,000	\$387,600
	11.3	Specified General Conditions	Monthly Dollar Amount	Monthly Dollar Amount	Monthly Dollar Amount	Duration (months)			
\$30,044		Mobilization and Initial Site Work Phase	\$ 26,500	\$ 19,917	\$ 15,022	2		\$53,000	\$39,834

Slide 22

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

MC/CM ITEM	Document Reference	MC/CM Fee	MC/CM Specified General Conditions	MMACC	GC/CM	Owner
General	00 50 00\ 3.1.2 & 3.1.4		As relates to MC/CM Scope		All others	
General	00 50 00\ 3.2		As relates to MC/CM Scope		All others	
Work During Construction	00 50 00\ 3.3.1				X	
Work During Construction	00 50 00\ 3.3.2		Meeting attendance only			
Work During Construction	00 50 00\ 3.3.3-3.3.10		As relates to MC/CM Scope		All others	
Work During Commissioning	00 50 00\ 3.4				X	

UWB – MC/ECCM Selection Process

(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

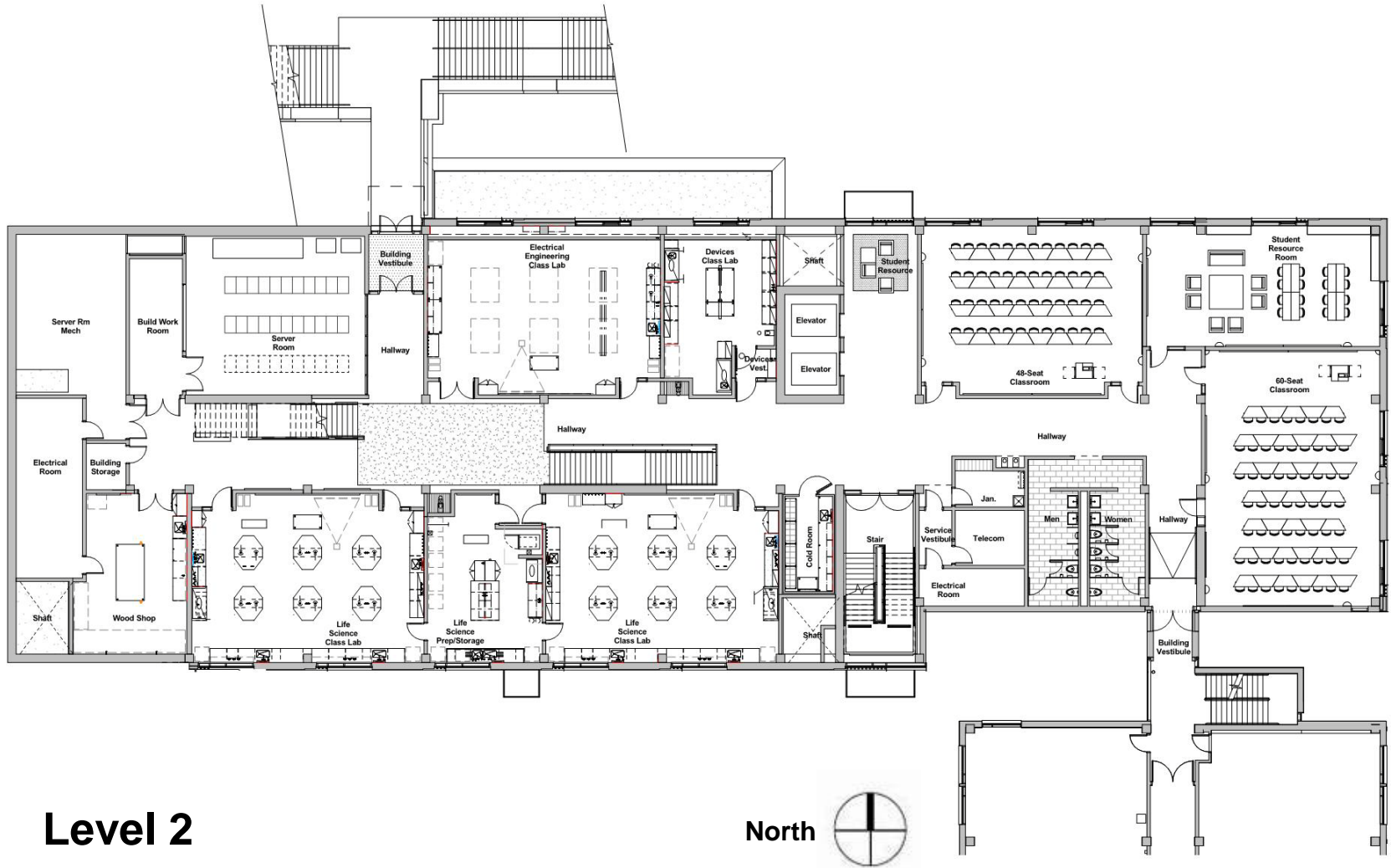
ID	Task Name	Duration	Start	Finish	010		Qtr 3, 2010			Qtr 4, 2010		
					May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	MC/ECCM Selection Process	101 days?	Tue 6/29/10	Tue 11/16/10								
2	Evaluation Criteria & Contract Development	30 days	Tue 6/29/10	Mon 8/9/10								
3	Draft Evaluation Process	5 days	Tue 6/29/10	Mon 7/5/10								
4	Review Evaluation Criteria & Points	5 days	Tue 7/6/10	Mon 7/12/10								
5	Incorporate Comments - Finalize Criteria	5 days	Tue 7/13/10	Mon 7/19/10								
6	Draft RFP/ME/ECCM Contract	15 days	Tue 6/29/10	Mon 7/19/10								
7	Review Draft Contract	10 days	Tue 7/20/10	Mon 8/2/10								
8	Incorporate Comments - Finalize RFP MC/ECCM Contract	5 days	Tue 8/3/10	Mon 8/9/10								
9	Justification Hearing	31 days?	Tue 7/27/10	Tue 9/7/10								
10	Publish Public Hearing Notice	1 day?	Tue 7/27/10	Tue 7/27/10								
11	Public Justification Hearing	1 day?	Tue 8/17/10	Tue 8/17/10								
12	Hearing Comments Review & Respond	10 days	Wed 8/18/10	Tue 8/31/10								
13	Protest Period	5 days	Wed 9/1/10	Tue 9/7/10								



13	Protest Period	5 days	Wed 9/1/10	Tue 9/7/10								
14	RFP Short Listing	22 days?	Wed 9/8/10	Thu 10/7/10								
15	Issue RFP	1 day?	Wed 9/8/10	Wed 9/8/10								
16	RFP Response Period	15 days	Thu 9/9/10	Wed 9/29/10								
17	Review/Evaluate/Short List Subcontractors	5 days	Thu 9/30/10	Wed 10/6/10								
18	Notify Subcontractors	1 day?	Thu 10/7/10	Thu 10/7/10								
19	Interview Process	7 days	Fri 10/22/10	Mon 11/1/10								
20	Interview Subcontractors	2 days	Fri 10/22/10	Mon 10/25/10								
21	Review/Evaluate/Short List Subcontractors	5 days	Tue 10/26/10	Mon 11/1/10								
22	Fee & Specified General Conditions	11 days?	Tue 11/2/10	Tue 11/16/10								
23	Notify Subcontractors	1 day?	Tue 11/2/10	Tue 11/2/10								
24	Receive Fee/SGC Bids	1 day?	Wed 11/10/10	Wed 11/10/10								
25	Review Points	3 days	Thu 11/11/10	Mon 11/15/10								
26	Award Subcontract	1 day?	Tue 11/16/10	Tue 11/16/10								

UWB – Mechanical Case Studies & Discussion

- Brett Magnuson – UW Facility Services
- Len Klein – GLUMAC
- Dave Nehren - Hermanson



Level 2

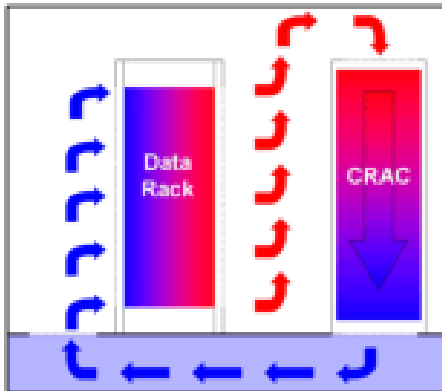


- Early Integration works!
 - Team-work atmosphere
 - Constructability Issues discussed as design evolved
 - Cost (VE) ideas put forth as design evolved
 - Client/users better informed of issues and decisions – fewer surprises
 - Projected decrease in substitutions requests, and RFI's

UWB – Server Room

- Data Center HVAC: System Types

- *Initial Approach: Chilled Water AHU with Traditional Space Temps*

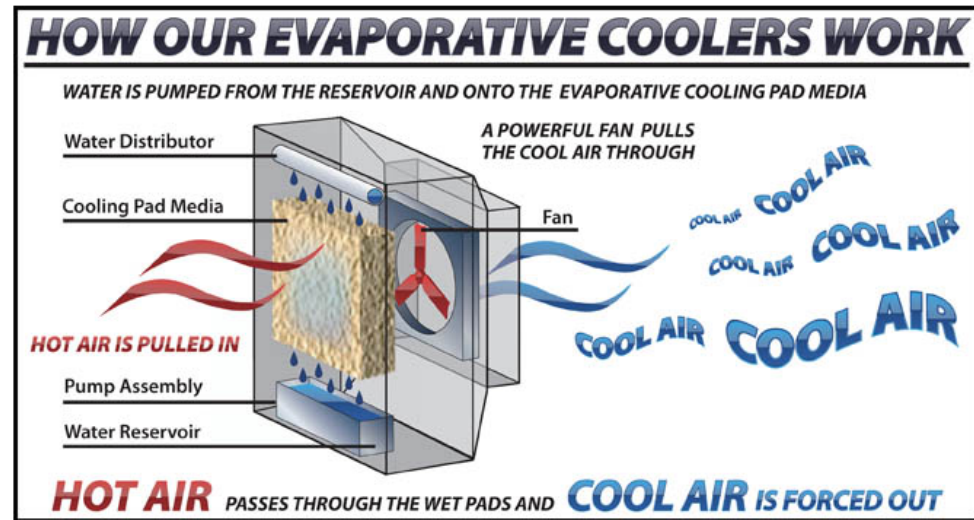
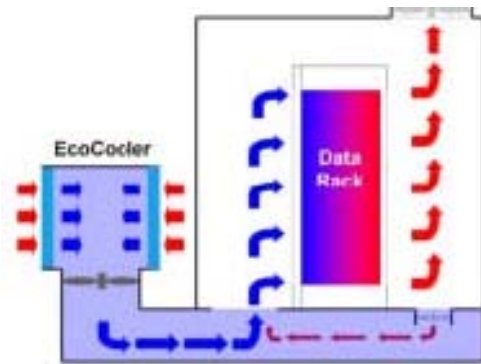


UWB – Server Room

- 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*

UWB – Server Room

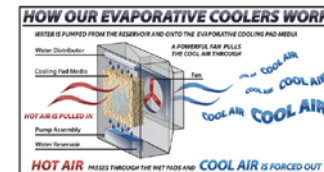
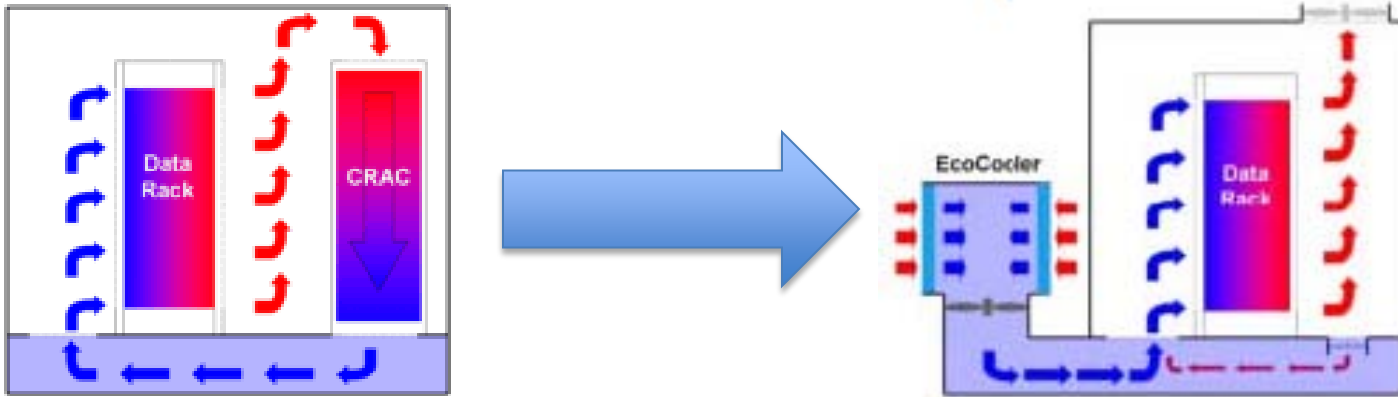
- Data Center HVAC: System Types
 - *Alternate Approach: Evaporative Cooling with Elevated Space Temps*



UWB – Server Room

- Data Center HVAC: System Types

- *Alternate Approach: Evaporative Cooling with Elevated Space Temps*



UWB – Server Room

- Data Center HVAC: Elevated Space Temps

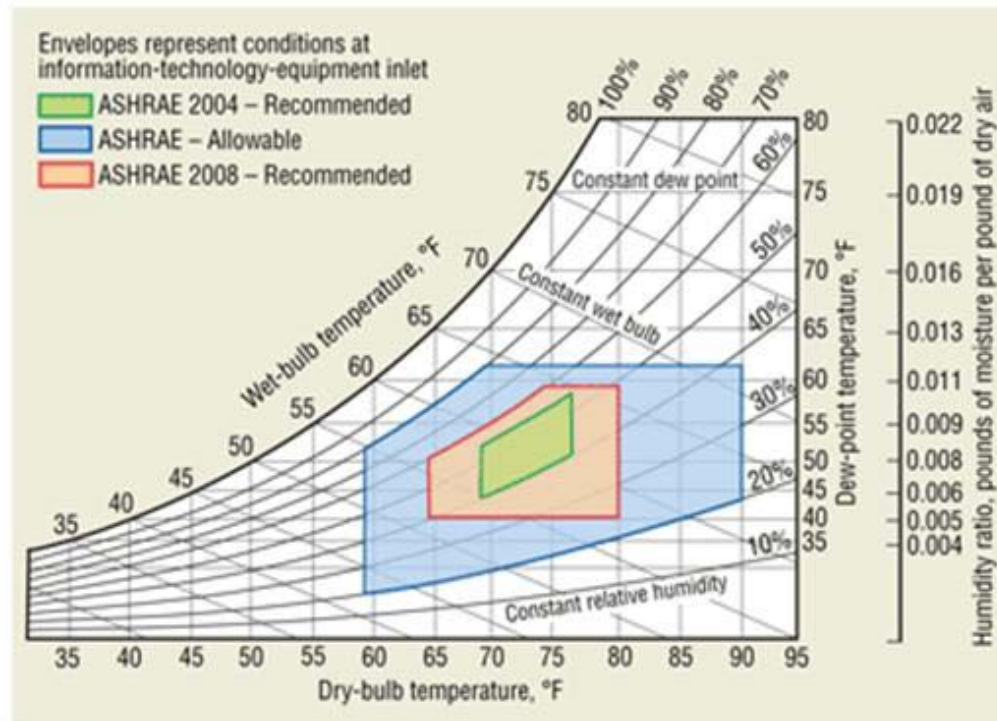


FIGURE 1. ASHRAE environmental specifications.

UWB – Server Room

■ 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?*

UWB – Server Room

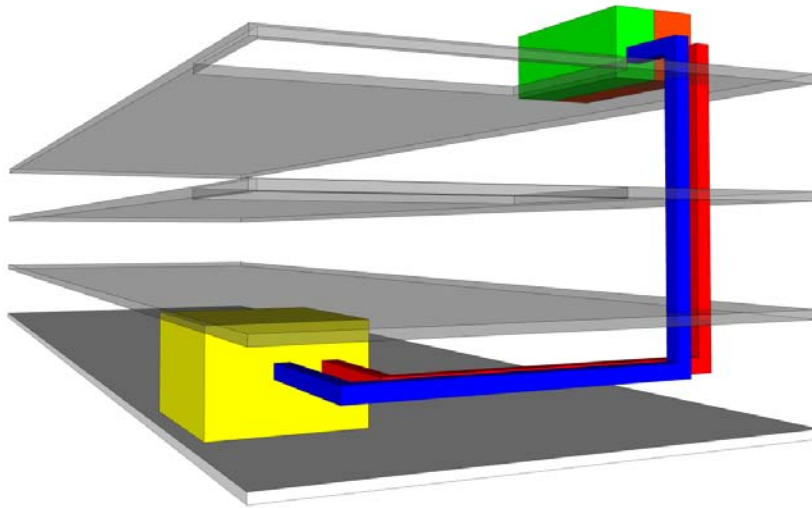
- Data Center HVAC: System Types
 - *What questions need to be resolved to proceed?*
 - *Is it proven?*
 - *Comfort level?*
 - *End User*
 - *Facilities Staff*
 - *How do you train the end user and facilities staff?*
 - *Do we gain all the previously mentioned benefits?*
 - *Final decision: All the stakeholders bought into this alternate concept (Designers, Builders, and Owner)*

UWB – Server Room

- Q: How do we make it even better?

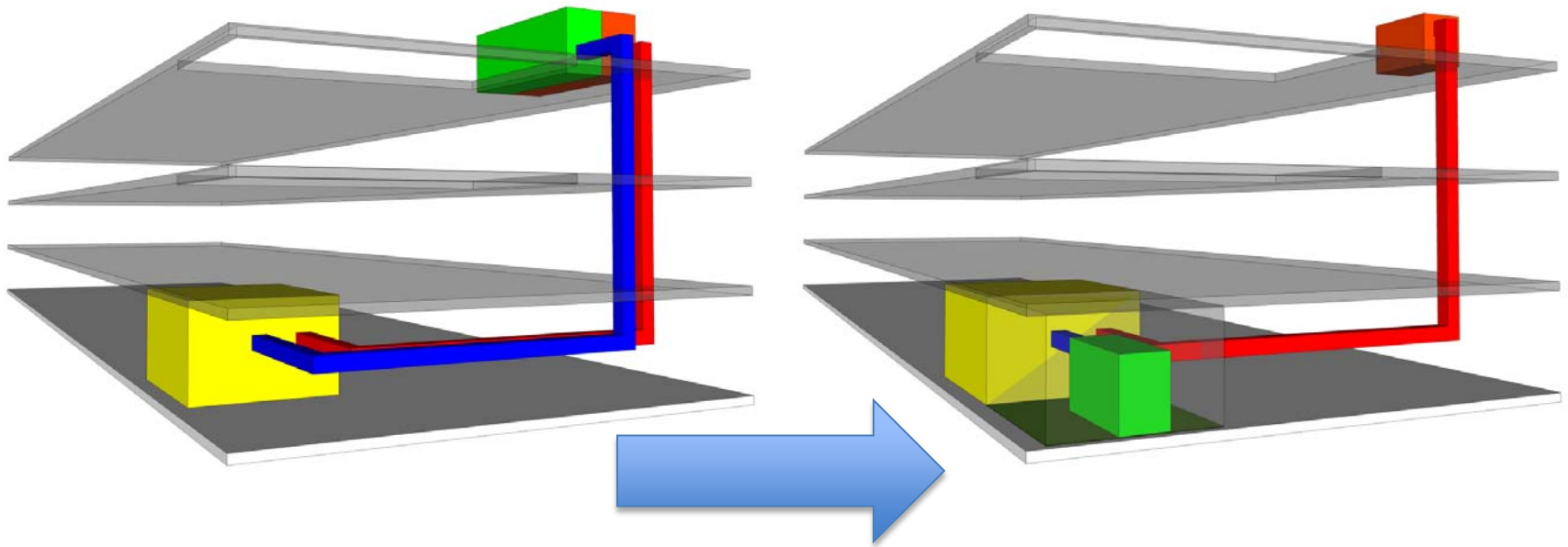
UWB – Server Room

- System Location: Initial



UWB – Server Room

- System Location: Final



UWB – Server Room

- 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)

UWB – Generator

- 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?

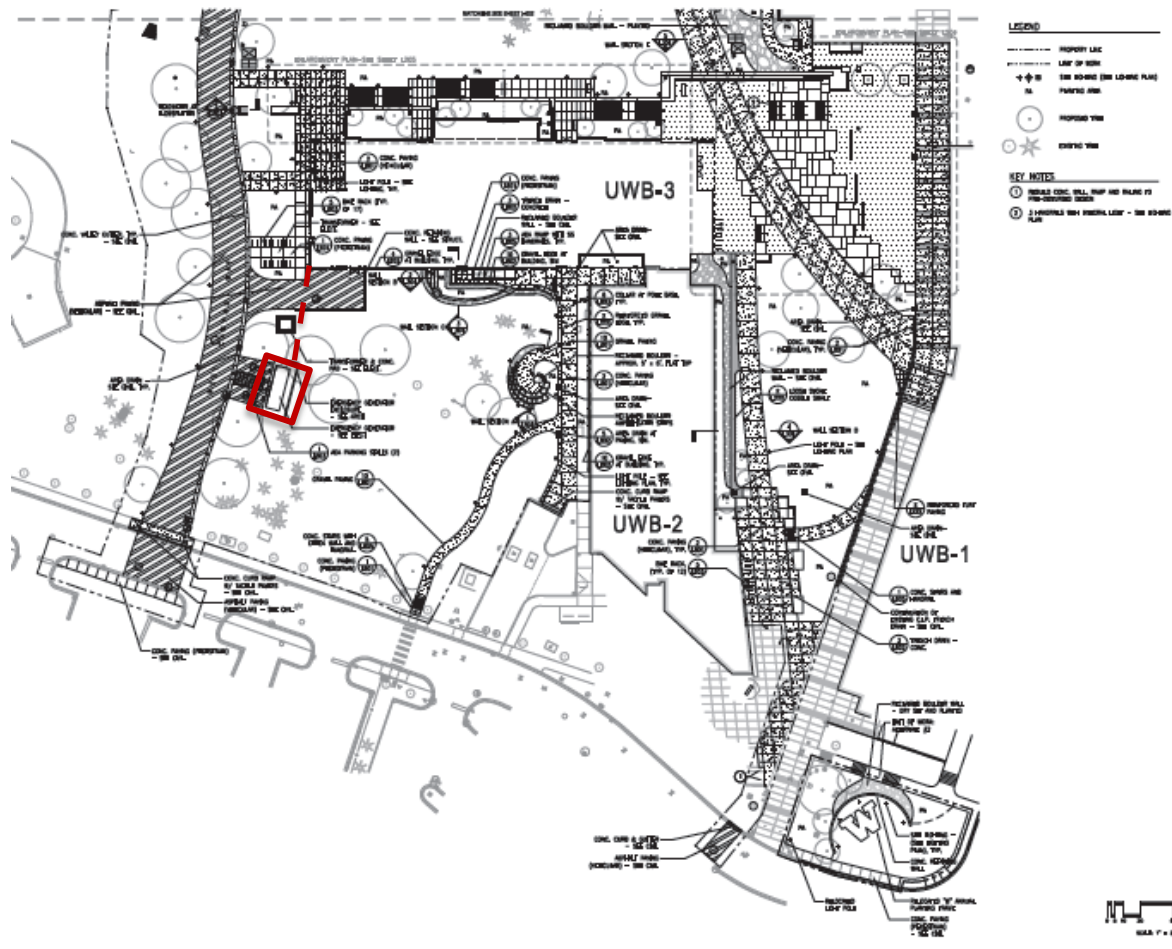
Is it dedicated to this building or to future buildings as well?

What can the budget handle?

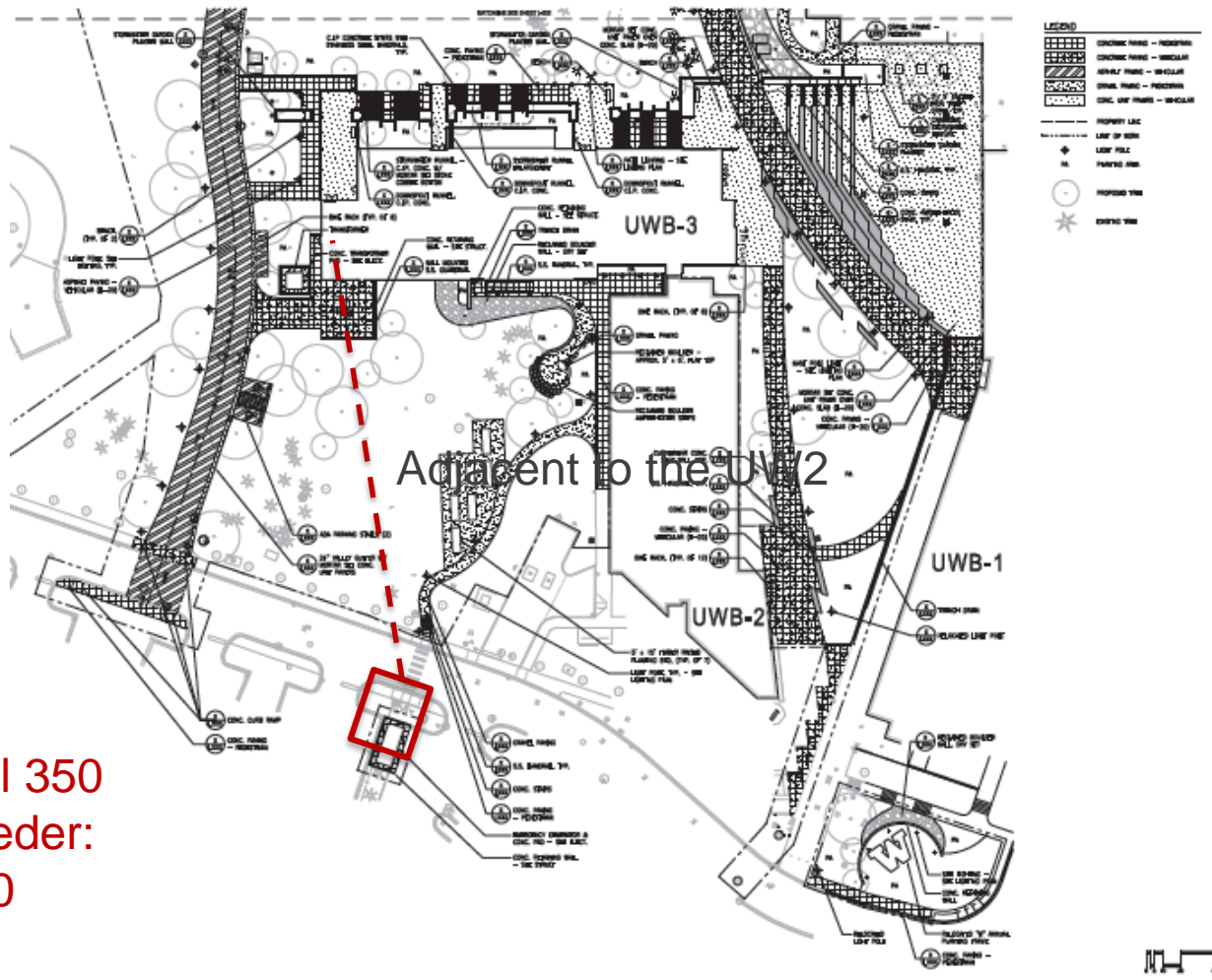
UWB – Generator

- Where should the generator be located?

Current Location Adjacent to New UW3 Building

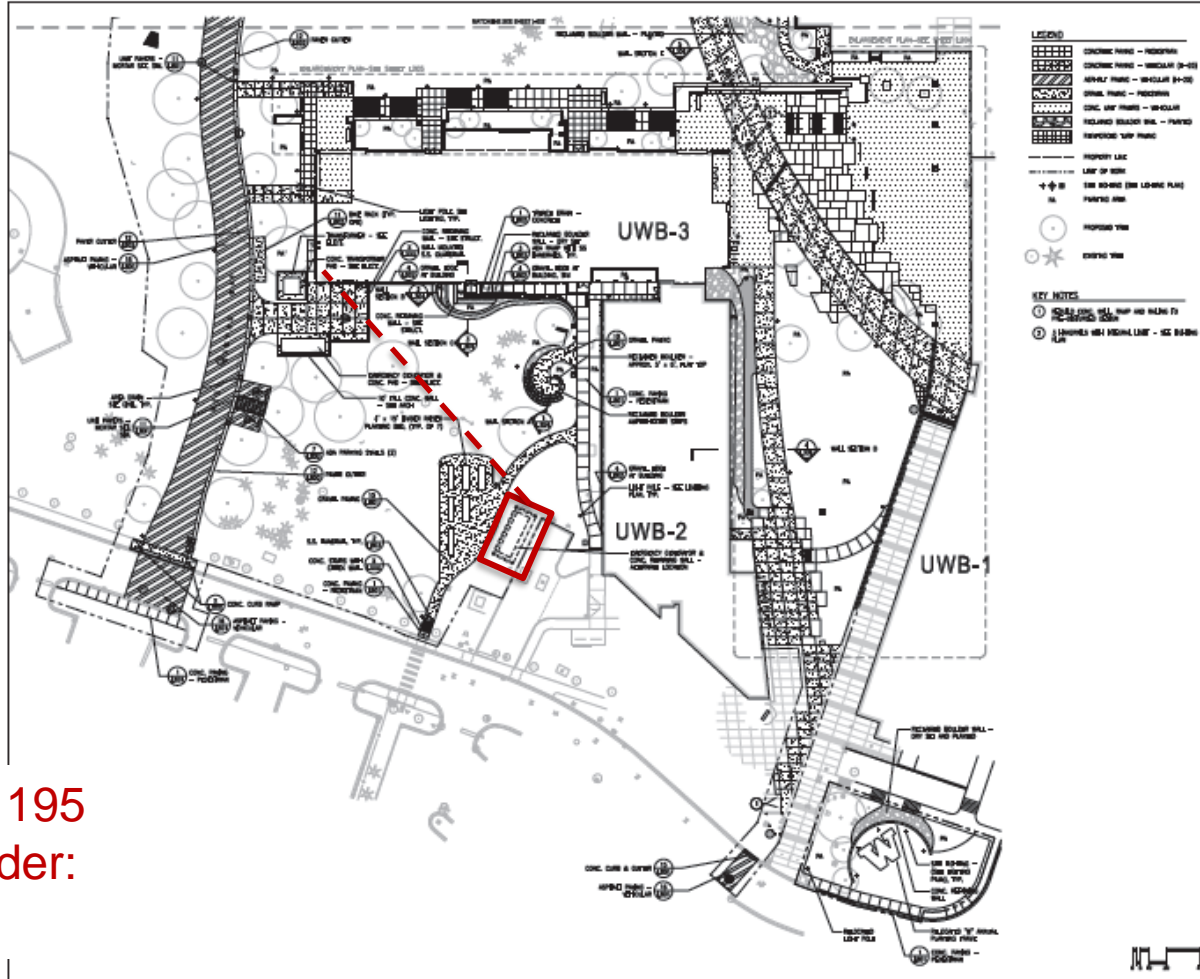


In the Parking Lot across NW 180th St.



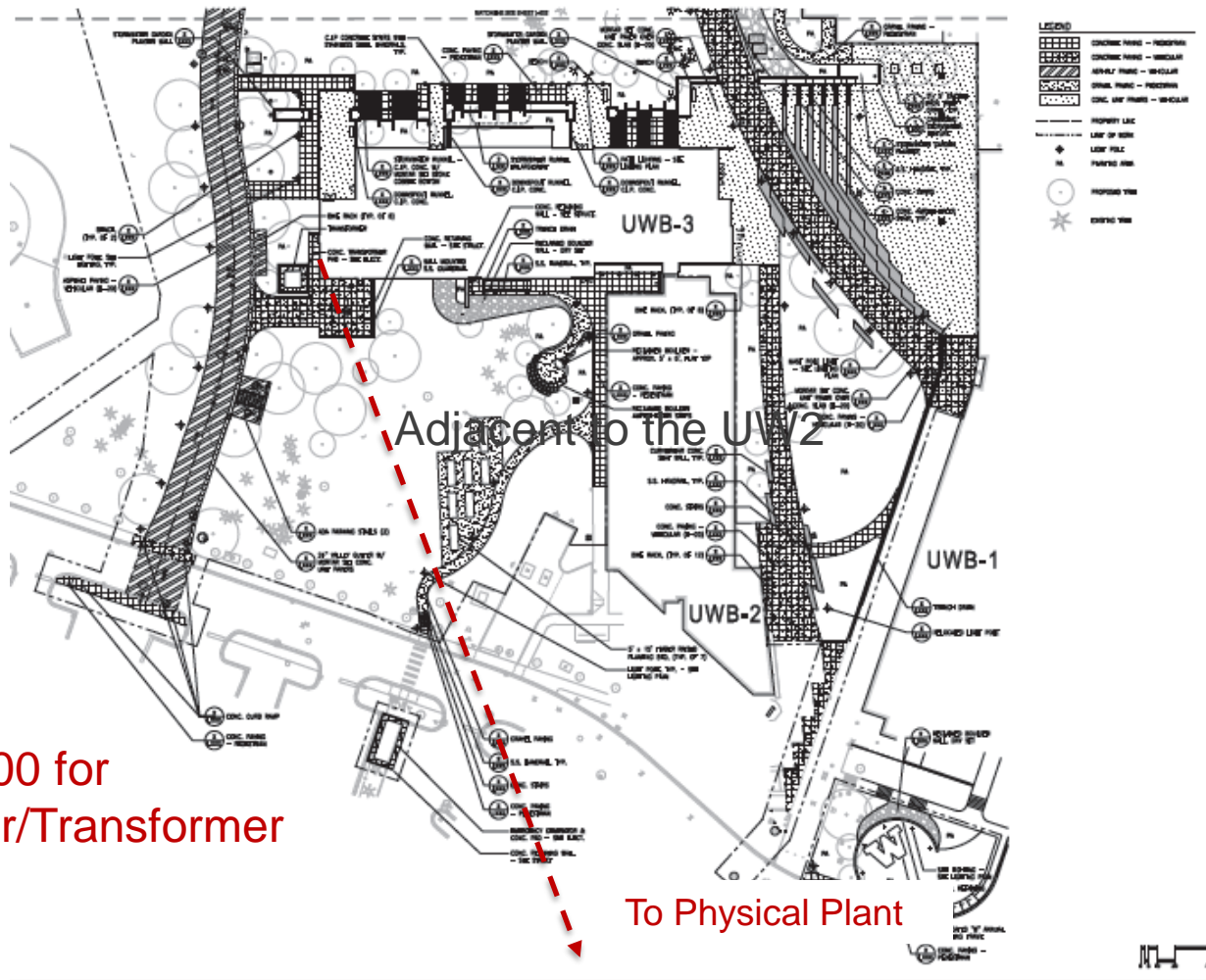
Additional 350 feet of feeder: + \$54,000

Adjacent to the UW2 Transformer



Additional 195 feet of feeder:
+ \$23,000

At the Physical Plant



Adjacent to the UW/2

+ \$200,000 for Generator/Transformer package

To Physical Plant

UWB – Lighting Controls

- 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