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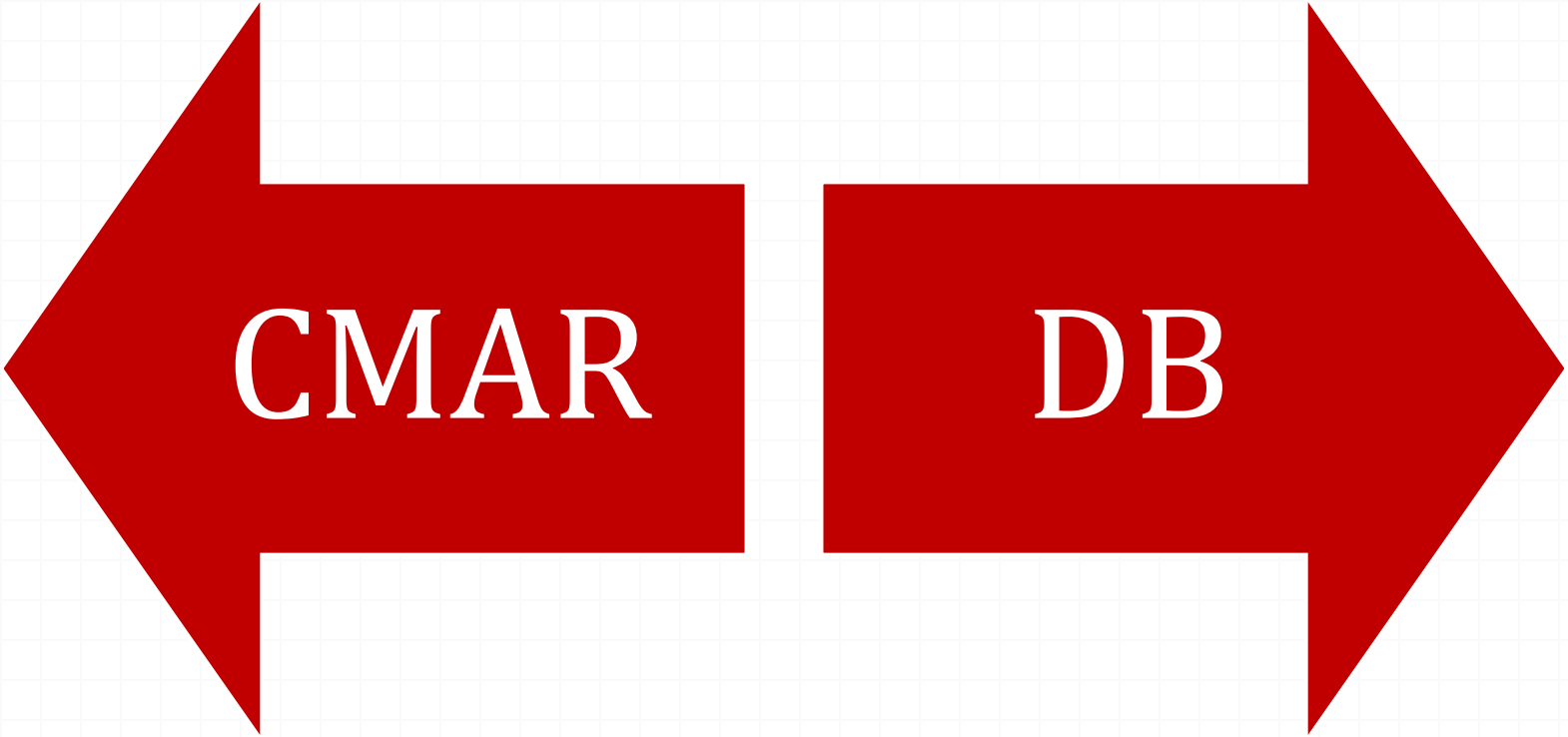
Construction Manager at Risk v. Design Build

Delivery Method Choices

May 13, 2013

Which one to choose?



Agenda

CMAR or DB

- Important differentiating characteristics of each delivery method
- Contrast the two methods
- Conclusions
- Hybrid methods

Quick View

CMAR	Design – Build
SERVICE	PRODUCT
• Program • Build a team • Develop the solution • Price, VE and re-price • Construction Contract • Construct	• Program • Develop criteria • Select SD proposals • Contract design and const • Complete design • Construct

Design - Build

- Contract for a facility, a product
- Scoring and selection is based on the qualities of the proposed building, the product
- Evaluate the facility by quantity, quality, functionality, materials, correctness of the proposed building based on the criteria documents

Design - Build

Product Evaluation Words

Shape dimensions color life cycle cost efficiency texture size flow area welcoming adjacencies fit into the campus material selection number of floors systems sustainability adherence to program style ease of maintenance secure constructible quantity net/gross ratios aesthetics

Design – Build

- Criteria documents – Important – time and cost
- Can stakeholders provide criteria?
- Select 1 out of 3 proposals
- Pay a stipend
- A lump sum contract based on schematic design to build the specified facility.
- Fixed price – contractor takes risk
- Limited influence of owner on design evolution

Design – Build

- Design is to code and criteria. No obligation to enhance the criteria
- Contractor owns design errors and construction problems
- Contractor leads the team
- Owner’s responsibility - assure compliance with contract

CMAR

- Contract is for professional services.
- Scoring and selection is based on the qualifications of the proposed team and the trust that they will perform as promised and as they have in the past.
- Evaluate the likelihood the individuals will collectively provide the services needed to design and construct the facility.

CMAR

Team Evaluation Words

Clear concise communicator trustworthy competent integrity open minded friendly organized transparent problem solver focused on solutions agile focus on the customer focus on the project goals professional participates initiatives decisive sets performance metrics hold others accountable self managing doesn't assume listens

CMAR

- Professional services agreements for design and construction management services
- CSU in privity with A/E and CM
- Contractor is not guaranteed construction phase
- Design is to code and criteria; Project enhancement suggestions are common and expected
- Scope creep
- Owner has price risk

CMAR

- Consider many design options
- Project team contributes to all design phases.
- Final design could be anything – evolves (+ or -)
- Owner leads the team
- Owner's responsibility - assure compliance with contract

Contrast

Factor	CMAR	DB
Criteria Docs	NA	Important
User input	During design	During criteria
Contract for	Service	Product
Design options	Unlimited	Limited
Price Risk	Yes	No
Flexible	More flexible	Less flexible
Leadership	CSU	Contractor

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Contrast

Factor	CMAR	DB
A/E Contract	CSU	Contractor
Scope creek	Yes	No
Enhancements	Yes	No
Const Admin 1-5	3	2 little less
Desired design **	Better	Good
Design details	OAC team	Contractor
Successes	Yes	Yes

Contrast

CMAR

- A process of assembling a team to perform and collaborate in the best interest of the owner to provide the design and construction services needed for the project

Design – Build

- A process of establishing criteria defining a project and acceptable solutions, and selecting a contractor to provide the design and construction services specified

Which one to choose?

Conclusion

CMAR	Design – Build
Service	Product
Better when the project is complex, want multiple solutions, to consider options, expert input, lack criteria, and can manage a team	Better when you know what you want and can specify it

Conclusion

Both CMAR and DB are good project methods. They each have their pros and cons

When selecting a method for a particular project, consider the project specifics, user groups, and leadership

Neither one is perfect

Hybrids

Take the best of CMAR and DB and make a new and better delivery method

Balance and weigh service, product, price, risk, criteria, knowledge, enhancements, flexibility, options, and ability to manage

Discussion???

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Construction Manager At Risk

Process – Collaboration – Hot Topics

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Where are we, and where do we want to go?

- The **PERFECT** Project….
- Improvements to CSU's CMAR process
- Best Business Practices
- Hot Topics
- Future changes

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Construction Manager At Risk

The PERFECT Project

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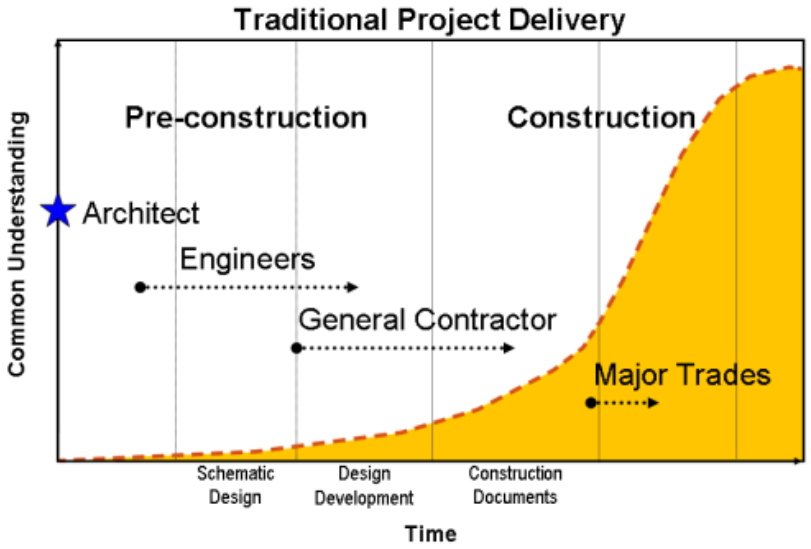
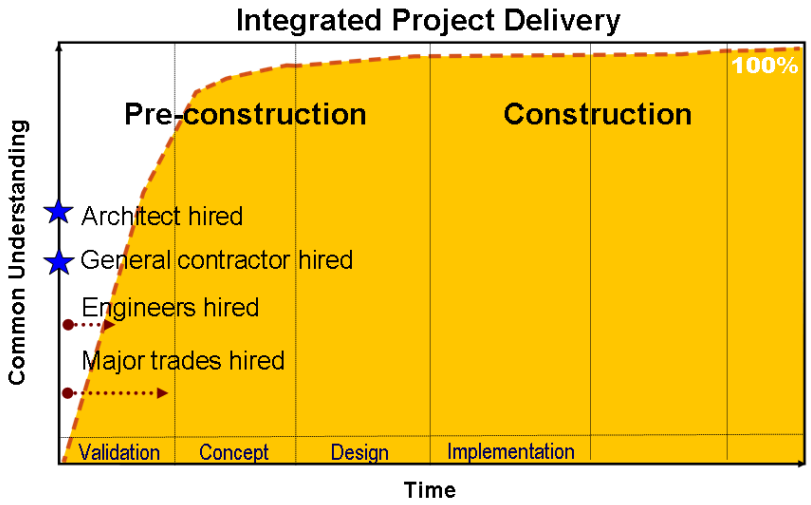
A Perfect Project ! ! !

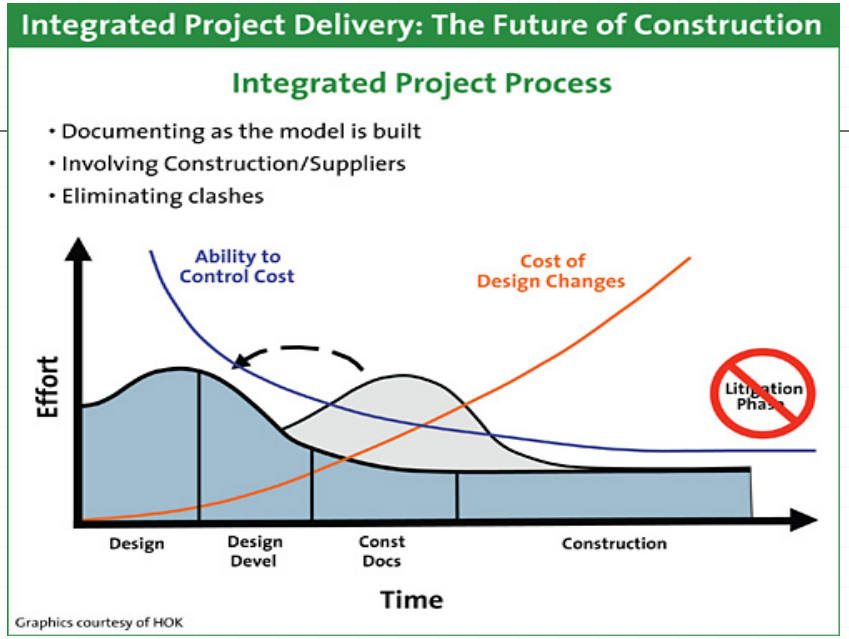
Problems with CMAR

- Bids over budget
- CMs buying projects
- Lack of trade input during design
- Need planning flexibility on complex projects
- Constructability comments not picked up
- Rush to bid before ready





- Common understanding and team formation is achieved much earlier in integrated project delivery
- Problems occur at handoff and from non-alignment



- Bring trades in early
- Spend the time in preconstruction that it takes to dial in the project while the team is still able to control costs, and the cost of design changes is low.
- The process is set up to solve problems early and eliminate claims later.
- Co-locate the project teams during preconstruction and construction
- Use BIM to provide the project team with an information stream to facilitate decision making

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IPD

Integrated project delivery is a collaborative alliance of primary team members into a process that harnesses their talents and insights to optimize project results and increase value to the owner

My Perfect Method

- Hire my favorite architect.
- Hire my favorite contractor.
- They know how I think and will look out for me – no need for too many plans and specs.
- They're honest. (Known them for years; sort of friends)
- They will hold down cost and bill me actual cost plus the agreed fees.
- No problems.

My Perfect Method

- Hire my favorite architect.
- Hire my favorite contractor.
- They're honest. (Known them for years; sort of friends)
- They will hold down cost and bill me actual cost plus the agreed fee.

NOT ALLOWED

Public Project

Public Contract Code

Perfect PUBLIC Project

- Predicted outcome - Meet all expectations
- Goals met – Program, Quality, Time, Budget
- Satisfied, Proud Stakeholders
- It looked so EASY….

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How to build a Perfect Project with CMAR

Recipe – combine equal parts of:

Perfect Process

With

Perfect Participants

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Perfect CMAR Process

- Form a team with the right skills and knowledge early
- Everyone has the same understanding of the Project Goals
- Participants and Project Goals are Aligned
- No gain in finding fault – Just solve the problem
- Education on process, roles and responsibilities

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Teams

- A small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable.
- Teams significantly outperform other work groups.
- It is all about the goals. Team performance is the means.

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Perfect Participants

- Ability and desire to do the job
- Ability and desire to be on this team
- Trustworthy
- Problem solvers - thinkers
- Happy with the compensation
- Work for the success of the team – the Project
- Motivated – hard workers
- Understand andembrace the process

1st Class Project Managers

With a 1st Class Process

- The Project is a showpiece, delivered on time and on budget
- The Project Team had a great time, met new respected colleagues
- and is sorry the project is over…..

It's Possible, and it happens!

- Solution Phase: A - Planning
  B - Design, code compliance and permitting, bidding
- Implementation Phase: Construction

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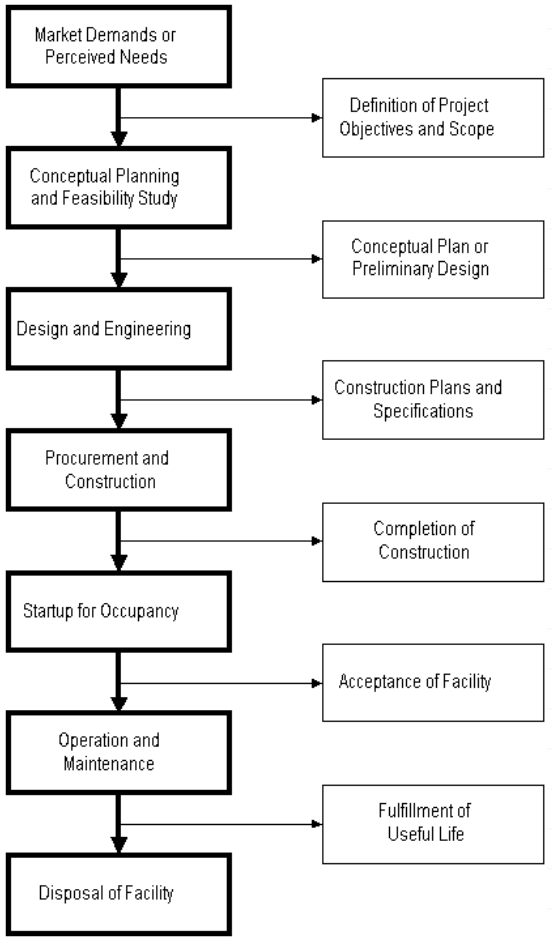
Planning, Design and Construction Process

- Planning
  - ✓ Scope of Work
  - ✓ Budget
  - ✓ Time Allotment
- Design + Construction
  - ✓ Design
  - ✓ Construction Documents
  - ✓ Agency Approvals
  - ✓ Bidding
  - ✓ Construction and Closeout
  - ✓ Occupancy



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Planning, Design and Construction Process

- Planning
  - ✓ Scope of Work
  - ✓ Budget
  - ✓ Time Allotment

- Design + Construction
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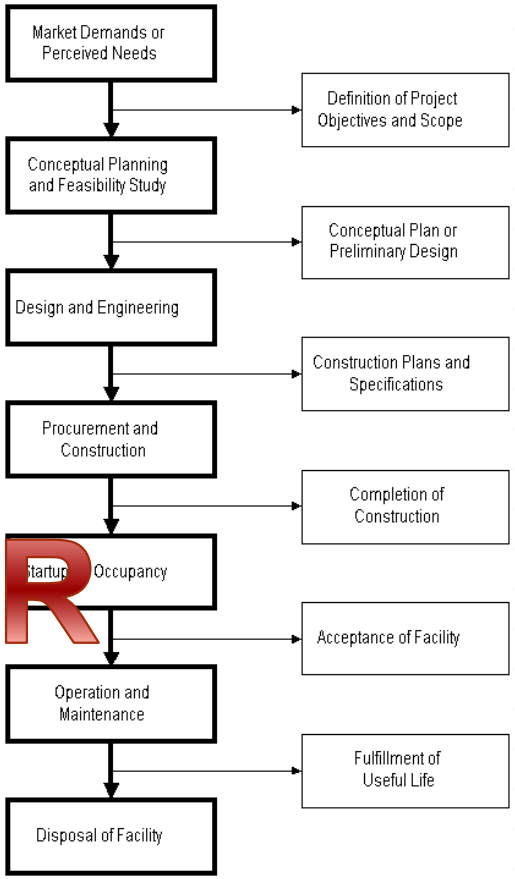
CMAR



CMAR Improvements

- RFQ - short list
- RFP - 4 proposals, more thorough proposal review
- New scoring
- Request staffing levels
- Bring key trades on board at design
- Revised and updated many documents

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Results

- Highly qualified contractors compete
- Selection is based mostly on quality
- Early trade involvement allows better design and price stability

Not My Perfect Method

BUT. . . For the public sector . . .

is very workable

Always looking to improve. More on that later.

Discussion ???

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Construction Manager At Risk

Process - Collaboration

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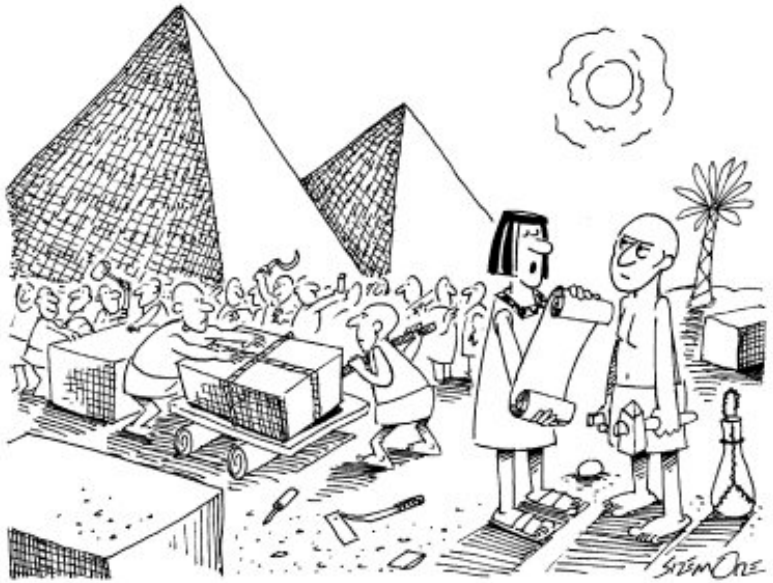
CMAR Process and Documents

General Information



"You do as you're told, we pay as we please. You work like a slave, we punish at random. That, in a nutshell, is our corporate culture."

- Information to Universities
- CMAR RFQ and RFP
- Contract General Conditions

- Owner as leader - Planning, Preconstruction, and Construction
- Lead by example, set tone for fairness, trust, respect, open communication, and collaboration
- Educate users – Process, roles, decisions

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CMAR Process and Documents

General Information

- Calculation of construction budget. Selection of the CMAR 2-7 will incorporate the CMAR revisions
  - ✓ .5% for DA & DB trade preconstruction budgets
  - ✓ BRIP / OCIP Calculation
  - ✓ GMP V. GMAX

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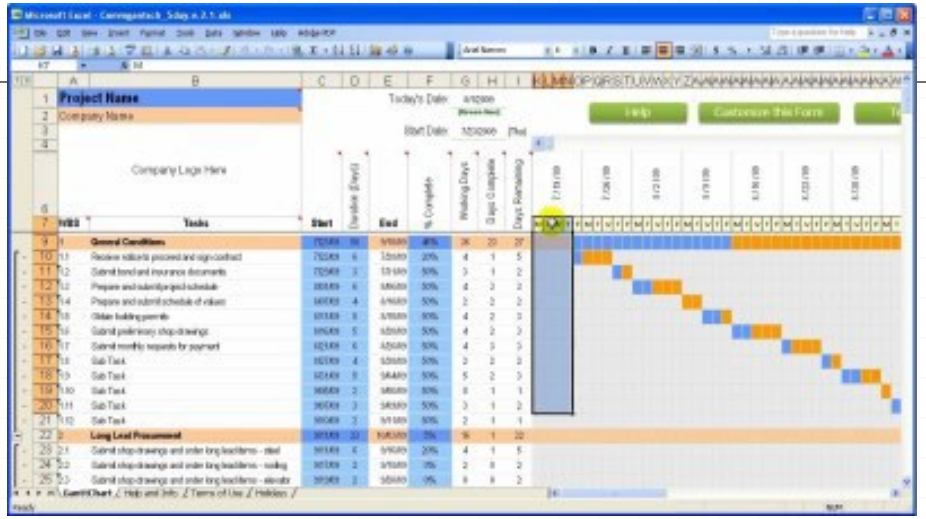
CMAR Process and Documents

General Information



- Project Schedule

  - ✓ Campus creates a project schedule to incorporate into the RFQ and RFP. Include ample time for BOT dates, agency plan review and approvals, constructability including final review and CM buyoff
  - ✓ Obtain outside input on construction durations if needed
  - ✓ CPDC working on schedule durations recommendation

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CMAR Process and Documents

General Information

- The CSU practices Integrated Project Delivery

- The RFP's descriptions about IPD
  - ✓ RFP 5.4; "Use the highest standards of the Industry"
  - ✓ RFP 6.7; "CM shall work with the AE in reviewing and developing the CDs"
  - ✓ RFP 6.8; "The CM in consultation with the AE shall identify project risks"
  - ✓ RFP 6.12; "The CM shall check the documents for completeness, coordination, ambiguities, and ability to bid, and make recommendations to the Architect and Trustees' Representative"
  - ✓ RFP 6.13; "The CM shall monitor the budget as compared to the Project scope…. If changes are suggested to the Project scope that may cause Project cost overruns CM shall notify the Trustees in writing…"
  - ✓ RFP 6.15; "CM shall reconcile cost estimates with cost estimates prepared by the Architect"

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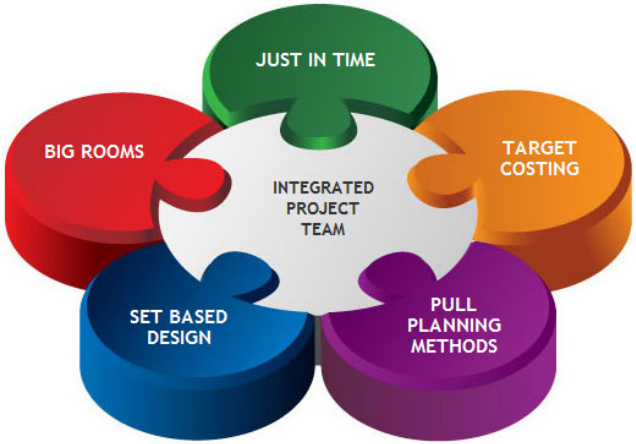
CMAR Process and Documents

General Information



- RFP does not dictate the use of LEAN tools and methods

  - ✓ CMAR is a LEAN process
  - ✓ CM's incorporate LEAN as a result of required deliverables
  - ✓ BIM, target costing, PULL planning, used by CMs
  - ✓ Campus can consider adding LEAN techniques on its projects

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CMAR Process and Documents

General Information

- The University should carefully consider project staffing

  - ✓ CMAR process emphasizes preconstruction effort and problem solving
  - ✓ More staff time is required in preconstruction
  - ✓ Preconstruction effort returns: Fewer Claims & Construction Issues
  - ✓ Contact CO if you need support substantiating preconstruction time

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CMAR Process and Documents

General Information

The AE and CM should be hired at essentially the same time. The Trustees are implementing the CMAR procurement method under the design-build authority.

Public Contract Code 10708 states:

When, in the opinion of the trustees, the best interests of the California State University dictate, ***the trustees may enter into an agreement with a contractor to provide all or significant portions of the design services and construction of a project*** *under this chapter.*

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CMAR RFQ and RFP Process

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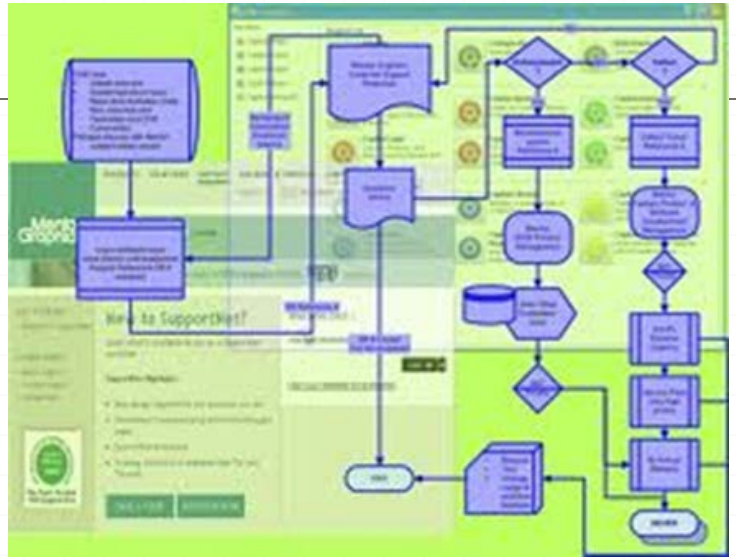
RFQ Process



- Advertise RFQ
- Prequalification Requirements
  - ✓ Open to all Contractors prequalified with the CSU
  - ✓ Proposers must be prequalified 10 days prior to submittal due date
- RFQ Requirements
  - ✓ Introductions
  - ✓ Project Description
  - ✓ Scope of CM's Work
  - ✓ CM Selection Process

RFQ Process

- RFQ Requirements Continued
  - ✓Selection Process Schedule
  - ✓Instructions for Submitting RFQ
  - ✓Managing Office for CSU
  - ✓SOQ Required Info & Scoring
  - ✓Questions
- Addendum
- RFQ Evaluation Score Sheet

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RFQ Process

- RFQ Requirements Continued
  - ✓RFQ Tabulation Sheet
  - ✓Develop Short List
  - ✓Send out RFP to Shortlisted Firms

- *Note : RFQ template is provided on CPDC website. Language bracketed in red is to be campus / project specific, and changed to black.*

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RFP Process

- Distribute RFP docs to Short-listed Proposers
- RFP Definitions are in the General Conditions
- RFP Documents (Article B)
  - ✓Introduction
  - ✓RFP Contents
  - ✓Project Description
  - ✓Project Schedule
  - ✓Scope of CM's Services
  - ✓Preconstruction Phase

RFP Process

- RFP Documents (Continued)
  - ✓Construction Phase
  - ✓CM Selection Process
  - ✓Technical Proposal Requirements
  - ✓Fee Proposal Requirements
  - ✓Project Award & Commencement
  - ✓Miscellaneous
- Addendum
- Technical & Fee Proposals submitted by Short-list

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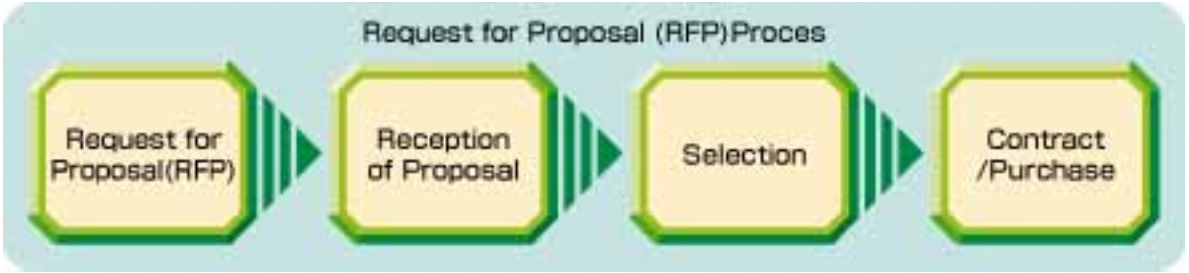
RFP Process

- CSU Committee evaluates technical proposals
- Reference Checks by CSU Staff
  - ✓Recommend these tasks be delegated to Staff Support
  - ✓Contact Teri Carr in CPDC CM as a resource
  - ✓PPRs have been updated to confirm



RFP Process

- CSU Committee interviews Short-listed Proposers
- Public Opening of Fee Proposals
- Final Scoring by CSU Committee
  - ✓Cost is 25% of Total Score
- Notify Proposers of Successful CM firm
- Award Preconstruction Agreement

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CMAR Process and Documents

Preconstruction

- Mitigation Monitoring and Reporting Programs (RFP 6.11)

- Design Phase CEQA Tasks
  - ✓ Include MMRP CEQA documentation
  - ✓ Provide a description of required mitigation measures
  - ✓ Develop schedule related to implementing mitigation measures

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CMAR Process and Documents

Preconstruction

- Design phase investigation work (RFP 6.17)
  - ✓ The CM and the Architect shall access the type, quantity, and quality of the available information describing existing site conditions
  - ✓ The CM shall make recommendations to the Trustees regarding supplemental site surveys

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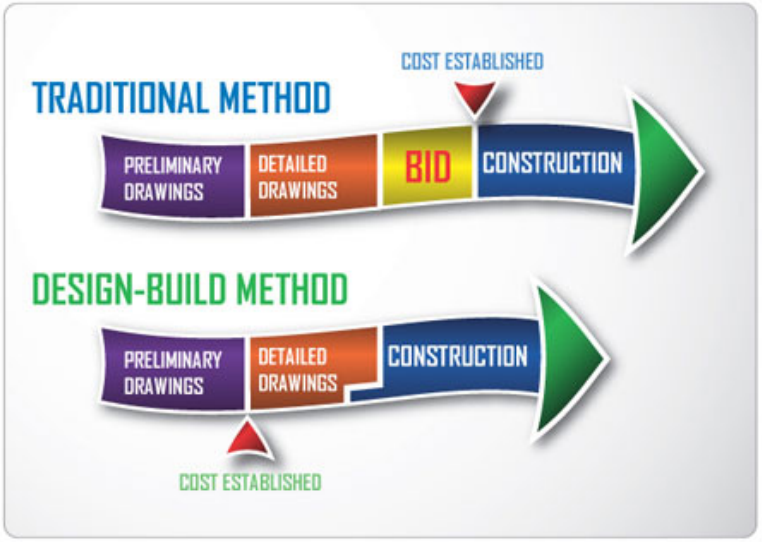
CMAR Process and Documents

Preconstruction



- Advantages of **D**esign **A**ssist and **D**esign **B**uild Trade Contractors

  ✓ DA & DB trades are an integral aspect of CMAR
  ✓ CSU can sole source products
  ✓ Process allows early determination of bid package costs
  ✓ Trade input should lower the cost of that scope of work

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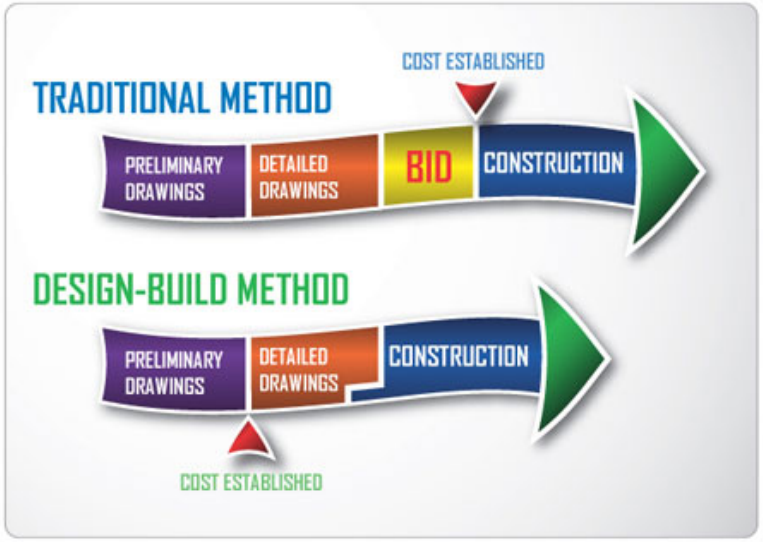
CMAR Process and Documents

Preconstruction



- **D**esign **A**ssist and **D**esign **B**uild Trade Contractor Process

  - ✓ Use of DA & DB trade contractors is project specific
  - ✓ Maximize the use of DA & DB trade contractors
  - ✓ Encourage use for *MEP trades*, curtain walls, foundation, fire protection, fire alarms, security, IT, BMS, and specialties
  - ✓ Prequalification / RFP process and a two contracts similar to the CMAR process is used for DA & DB process

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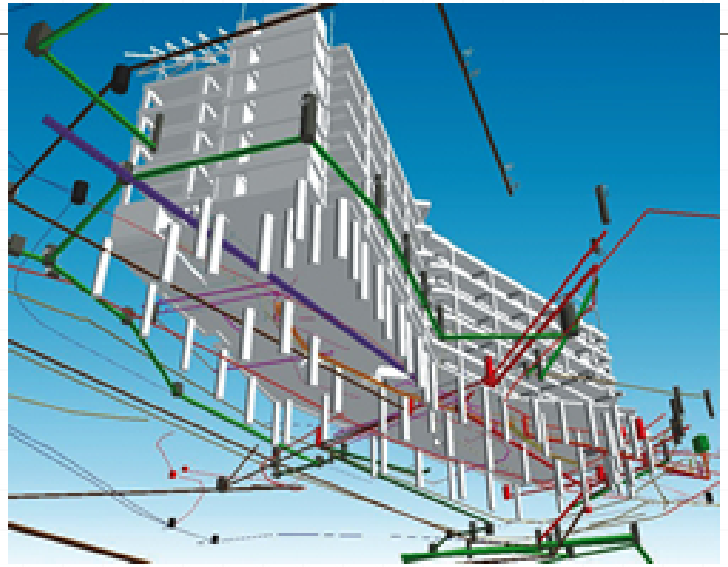
CMAR Process and Documents

Preconstruction



- DA and DA Trade Contractor Process

  - ✓ CM initiates the enhanced trade contractor prequalification process, including advertising the bid package and performing the RFP process
  - ✓ The CM, Campus, and Architect jointly work through the Prequal and RFP process

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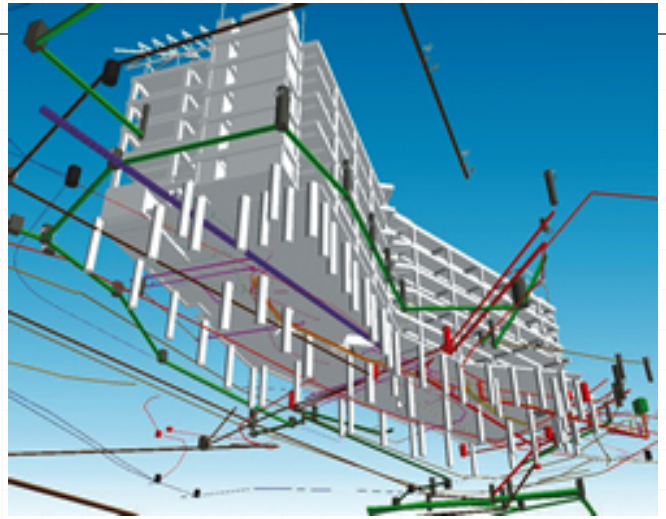
CMAR Process and Documents

Preconstruction



- DA Trade Contractor Process

  - ✓ Trade contractor proposes a fee for preconstruction services and a target construction subcontract amount
  - ✓ Trade contractor will work with the CM and AE to achieve the target construction subcontract amount

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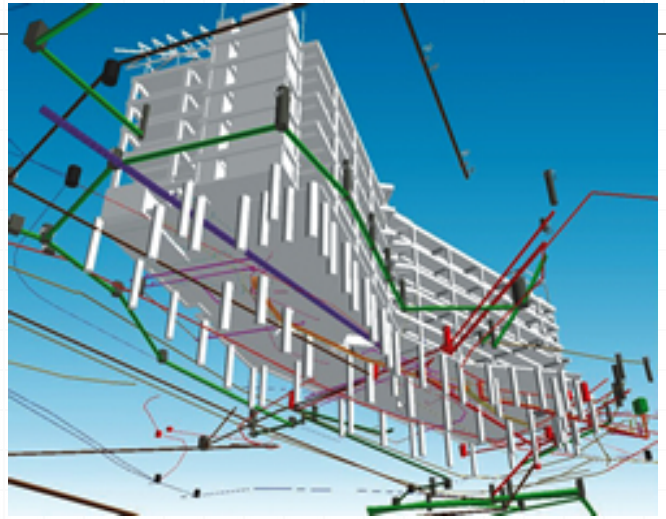
CMAR Process and Documents

Preconstruction



- DA Trade Contractor Process

  - ✓ AE firm remains the Engineer of Record
  - ✓ Delegate some detailing to the DA trade contractor
  - ✓ Constructability and estimating are key elements
  - ✓ Required to propose a final construction subcontract amount

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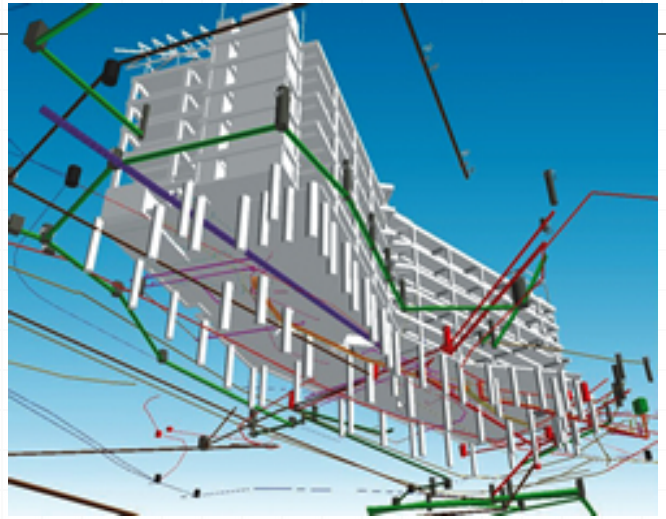
CMAR Process and Documents

Preconstruction

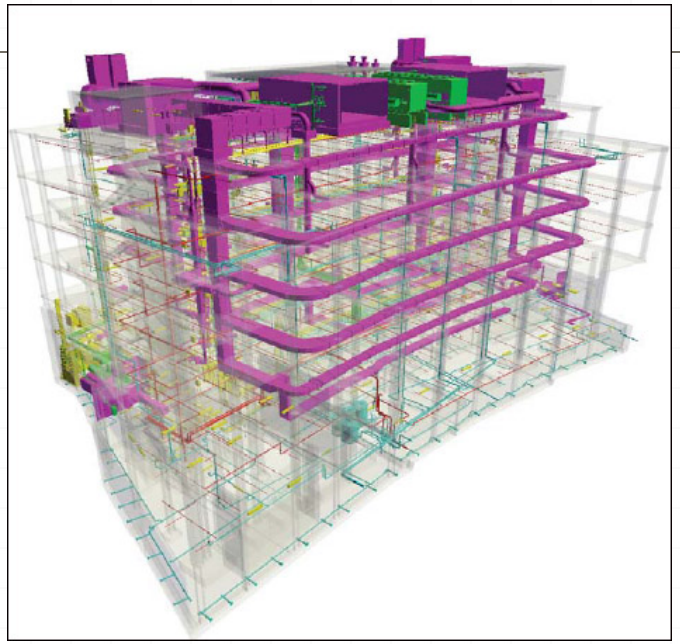


- DA Trade Contractor Process

  - ✓ If proposed final subcontract amount is close to the target subcontract amount, and the CM is awarded a construction contract, the Campus will instruct the CM to award a construction subcontract
  - ✓ If proposal exceeds the target amount the work may be put out to an open bid
  - ✓ The trade contractor may bid the work

CMAR Process and Documents

Preconstruction

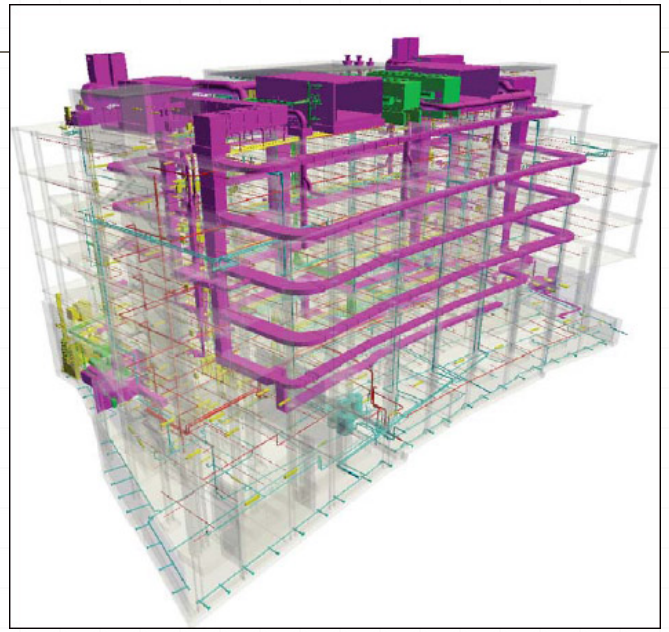


- DB Trade Contractor Process

✓ Bid package must be a performance type design build scope
✓ The DB contractor will propose on completed cost for his scope
✓ Quality points and total cost points should be evaluation factors

CMAR Process and Documents

Preconstruction



- DB Trade Contractor Process

  - ✓ CM is given a contract amendment for the design portion of the DB trade contractor's proposal
  - ✓ DB contractor is contractually required to hold his proposed cost

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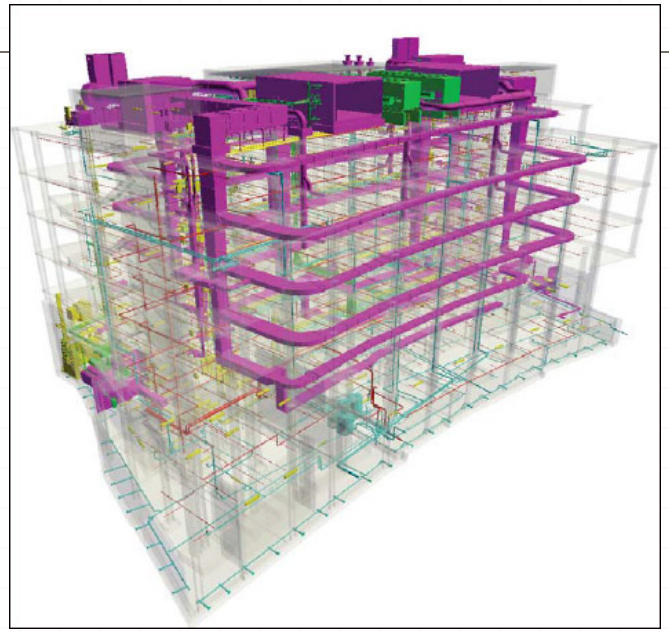
CMAR Process and Documents

Preconstruction



- DB Trade Contractor Process

  - ✓ AE firm delegates detailing and design responsibility
  - ✓ DB trade contractor's engineer is the engineer of record
  - ✓ AE will incorporate the DB trade contractor's drawings and details
  - ✓ DB construction contract contingent on CMAR receiving a contract

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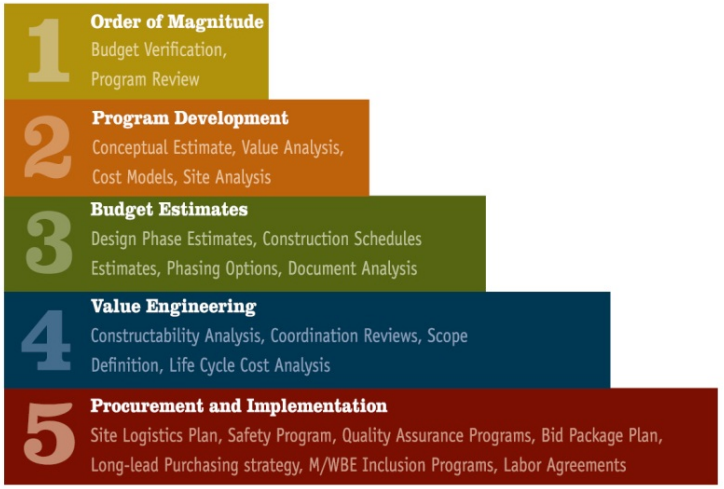
CMAR Process and Documents

Preconstruction



- Validation v independent review of budget and schedule (RFP 6.10 & 6.13)
  - ✓ Most important initial task is for Project Team to determine if budget and schedule are ample to complete the project
- Scope creep during preconstruction (RFP 6.13)
  - ✓ Changes to the Project scope that may cause Project cost overruns, CM shall notify the Trustees in writing…

CMAR Process and Documents

Preconstruction

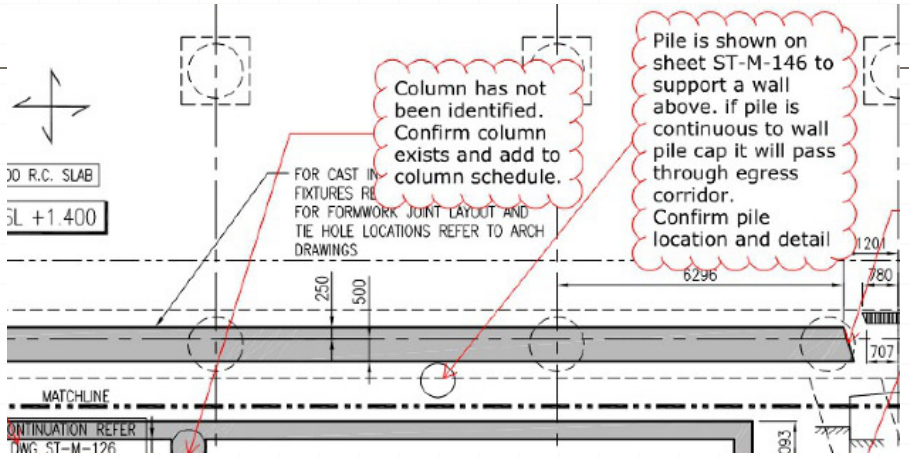
Calibrate

Vs. Squeeze

- Reconciliation of AE and CM documents: 10% standard of care
  - ✓ Design to 95% of Target Budget = Base Bid
  - ✓ Incorporate 5% add alternates at schematic phase – project enhancements
  - ✓ Architects and CM Fee is based on 100% target budget
  - ✓ 10% estimating tolerance – 95% to 105% of budget

CMAR Process and Documents

Preconstruction



- Campus back-check of CM constructability to assure all comments have been addressed is a precondition to bidding

  (RFP 6.12, 6.34 – 6.38)

- CSU must enforce CM's recommendations
  - ✓ CM does not hold AE contract

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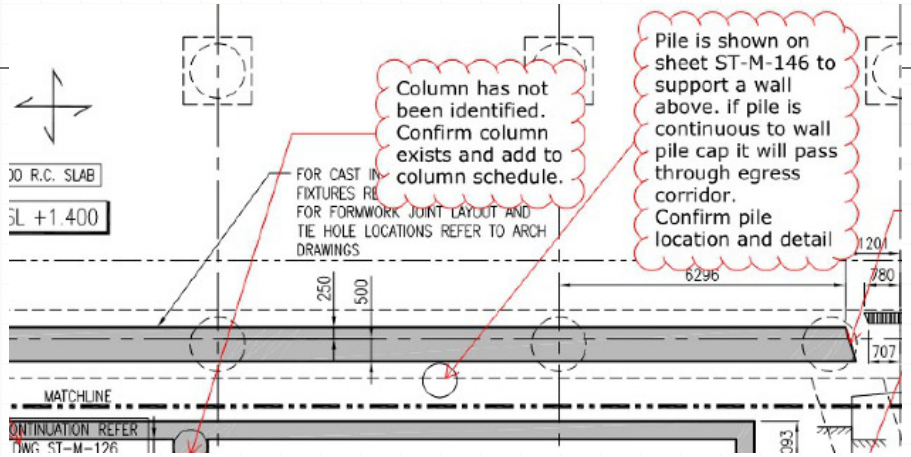
CMAR Process and Documents

Preconstruction



- Refinement to CM's warranty of construction documents (App 4.4)
  - ✓ Re-work or added work due to ambiguities or conflict in CDs
  - ✓ Work shown or inferred in the CDs, but not described to the extent that it is sufficient to obtain competitive bids
  - ✓ Work shown or inferred on construction documents but missing from bid packages

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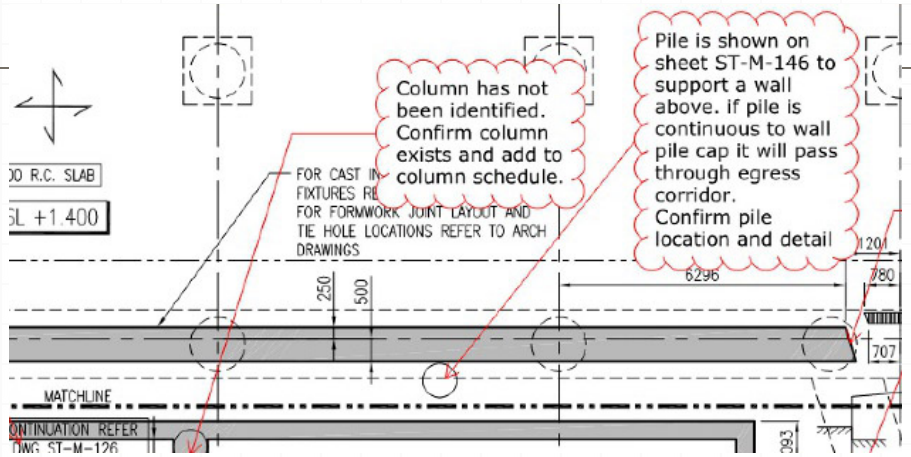
CMAR Process and Documents

Preconstruction



- Owner Responsibility for Change Order

  - ✓ Cost of correcting design errors
  - ✓ Work elements shown and/or designed incorrectly
  - ✓ Cost of work not shown or inferred in the construction documents
  - ✓ Owner requested changes or additional work

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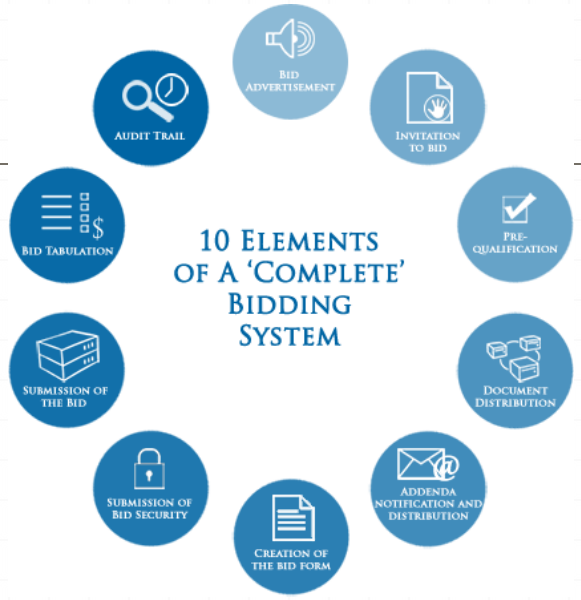
CMAR Process and Documents

Preconstruction



- Review and approval of bid packages for CSU minimum standards (Info to Univ. #9)

  - ✓ Assignment clause: No conflicts with our ability to take over trade contract agreements
  - ✓ Documents tied to Contract General Conditions
  - ✓ No conflicts with Contract General Conditions
  - ✓ No conflict with law

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CMAR Process and Documents

Preconstruction

- CM Trade bid prequalification process
  - ✓ Prequalify all MEP trades and other trades with estimated value of 5% or more of the GMP
- Qualify a minimum of 4 contractors per trade
  - ✓ Safety requirements
  - ✓ License requirements
  - ✓ Project experience
  - ✓ Specific company information (i.e. owned by or affiliated with another firm)
  - ✓ How much work is subcontracted out?
  - ✓ Insurance information
  - ✓ Bonding information
  - ✓ Litigation
  - ✓ References from three suppliers
  - ✓ References from three general contractors

CMAR Process and Documents

Preconstruction

- CM to provide a list of prequalified trade contractors
  - ✓ Review against list of debarred contractors in DIR website
  - ✓ Assure that there is a minimum of 4
- Owner's effort to increase the size of bidding pools (RFP 6.21)
  - ✓ Help solicit bidders – do not dictate prequalification or awards.

CMAR Process and Documents

Preconstruction

- Trade contractor contingencies (RFP 6.23)
  - ✓ The CM shall not cause the trade contractors to include any construction contingency or allowances in their bids
- Addendums
  - ✓ Size, type and timing of addenda
  - ✓ Manage the process to reduce trade contractor risk and bid costs

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CMAR Process and Documents

Preconstruction

- Trade Contractor advertising and bidding
  - ✓ All trades must be advertised
  - ✓ Awards must be made to low bidder
  - ✓ Solicit at least 3 bids for each trade
  - ✓ OK to award if only one bid as long as it is in line with budget
  - ✓ CM normalizing of trade bids may take 3 weeks
  - ✓ ***No favoritism or bid shopping occurs***
  - ✓ CM may rebid fairly quickly if required
  - ✓ The CM may not negotiate
  - ✓ Bids may be paper or electronic (I to U 10-B-10)

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CMAR Process and Documents

Preconstruction

- PPR has been modified to require a letter from the University
  - ✓ University followed the CSU CMAR selection process
  - ✓ CM incorporated the CSU trade prequalification format
  - ✓ CM publicly advertised the bidding for each trade
  - ✓ How many trades the CM prequalified
  - ✓ How many firms actually bid for each trade
- *The University should oversee the process to assure that no favoritism or bid shopping occurs*

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CMAR Process and Documents

Preconstruction

- The Trustees may withhold the CM final preconstruction payment pending a rebid (RFP 6.30)

- Clarifications of CM fee, OH&P and Contingency basis
  - ✓ Site Management Fee is lump sum
  - ✓ CM benefits with an early finish
  - ✓ OH&P is a proposed percentage of direct cost budget (unless more than 4% less than budget)
  - ✓ Contingency is proposed % of direct cost not to exceed budget

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CMAR Process and Documents

Preconstruction

- Table A Revisions

  - ✓ Monthly cost of utilities is a direct cost allowance
  - ✓ Reasonable suspicion and post-accident OCIP drug testing are Construction phase services
  - ✓ Periodic testing is a direct cost Allowance
  - ✓ Corrective work is OH&P
  - ✓ Rental of temp facilities including fencing and scaffolding is direct cost
  - ✓ SWPP has been added as a direct cost

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CMAR Process and Documents

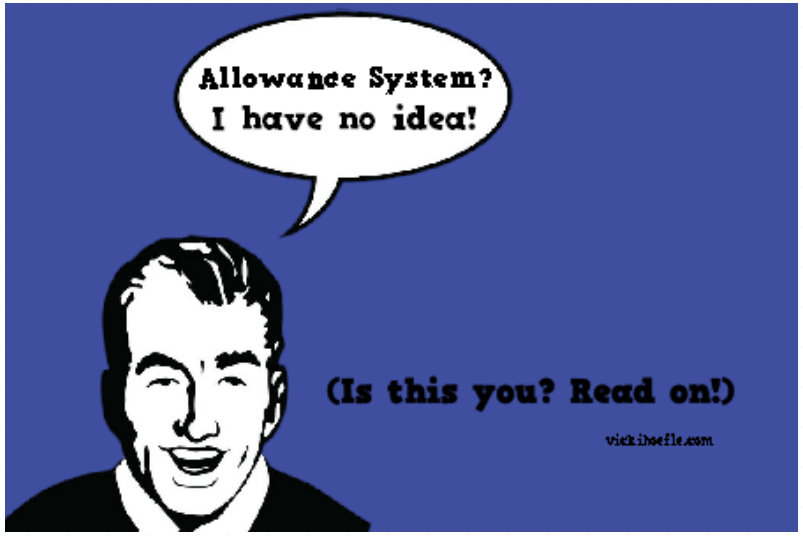
Preconstruction

"I kept a small percentage of your allowance for administrative costs."

- CM Allowances (SUAM update, RFP 6.31, RFP 6.33) (I to U 10-D-2)
  - ✓ If the CM has not received a bid
  - ✓ CM is self-performing work that was not competitively bid
  - ✓ Bid normalization reveals necessary work that is not in trade bids
  - ✓ Indeterminate scopes of work
  - ✓ Allowances should not be more than 10% of contract

CMAR Process and Documents

Preconstruction



- Use of Allowances

  - ✓ Must be authorized by FI
  - ✓ Allowable costs per GC 6.01
  - ✓ Trustees allowance is increased by FI
  - ✓ Overruns in a CM allowance
  - ✓ A balance left in a CM allowance is returned to the Trustees

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Evaluation of GMP Submittal

GMP Check List

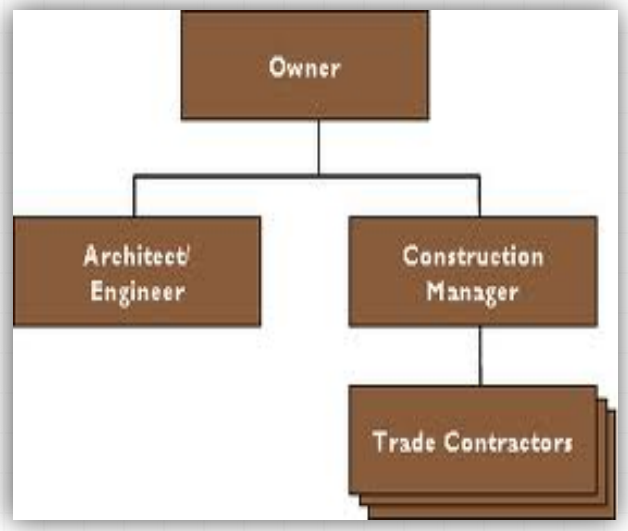
- The CMAR Submittal package should include
  - ✓Table of Contents
  - ✓Executive Summary / Cover Letter
  - ✓GMP & Project Cost Recap
    - ➢Direct Costs
    - ➢Allowances
    - ➢CDI/Subguard (or something similar; if any)
    - ➢Fees for CM Const. phase services, contingency, & OH&P
    - ➢Recap of bid summary, alternates, & gen requirements
    - ➢Negotiated fees (if any)

GMP Check-list

- Review of CMAR Submittal package continued…
  - ✓Warranty Letter (see standard letter in RFP docs)
  - ✓CM Exclusions, Assumptions, Clarifications (if any)
    - ➢Subject to negotiation
    - ➢Call CPDC for help
    - ➢Should not include RFI questions
  - ✓Allowances
    - ➢Only for undetermined scopes of work
    - ➢Should not be used just to pad contingency
    - ➢For specific and discrete purposes

GMP Check-list

- Bid Package Summary & Award
  - ✓Review self-performed work
    - ➢Shall be an allowance if not bid
- Document Log
- Preliminary Schedule
- List of Trade Contractors
- DVBE Declaration & Submittal
  - ✓Confirm submittal against RFP response %s
  - ✓3% minimum



GMP Check-list

- Bid Comparisons
- Accept GMP
  - ✓All costs should be known at this time (all bids in and normalized)
  - ✓Try to avoid modifying costs after receipt of final GMP
  - ✓Back-check costs against Table A

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CMAR Process and Documents

Construction

- Eligible Use of CM Contingency (RFP 6.35)
  - ✓ Re-work due to ambiguities or conflict in construction documents
  - ✓ Work shown or inferred on CDs missing from bid packages
  - ✓ Work not described to the extent that it is biddable
  - ✓ Over-runs on allowances
  - ✓ Other uses as approved by University

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CMAR Process and Documents

Construction

- Ineligible Use of CM Contingency (RFP 6.36)
  - ✓ Additional Project management staff
  - ✓ Weather protection of work or materials
  - ✓ Insurance co-pay (OCIP and BRIP deductible co-pay) costs
  - ✓ Any item listed in Table “A” as: Overhead & Profit; or Construction Phase Services

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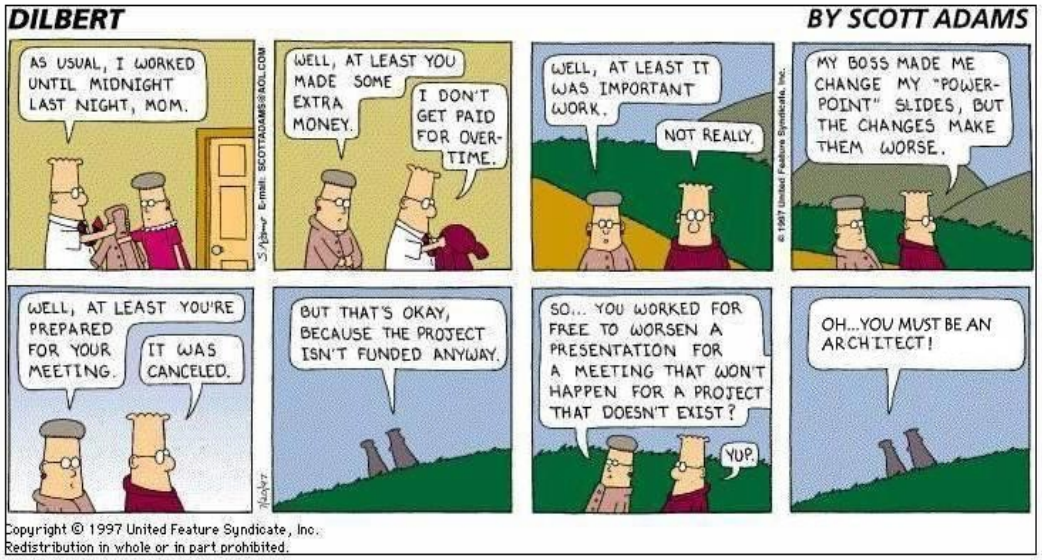
CMAR Process and Documents

Preconstruction



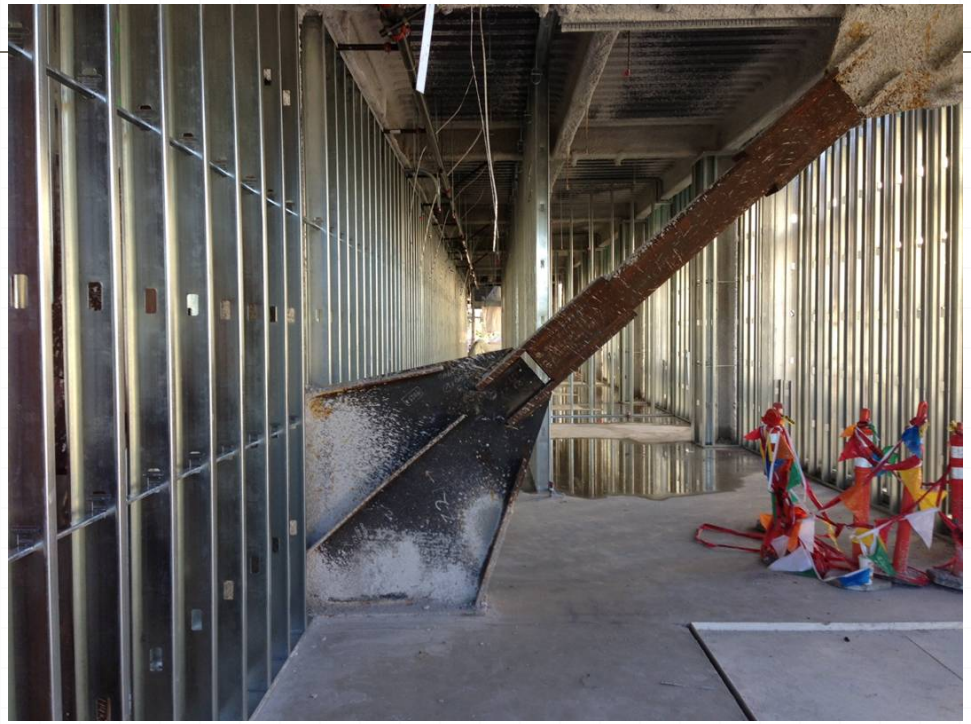
- Architects' Responsibilities

  - ✓ The technical design of the Project
  - ✓ Capturing the entire scope of work in the construction documents
  - ✓ Design errors, assure elements shown & designed correctly
  - ✓ Technical interpretation of design issues

CMAR Process and Documents

Construction

Use of Contingency



The brace section in a service hallway did NOT show up in the clash detection software. Which makes sense, the brace is in an open hallway, it isn't clashing with any other piece of the building.
It's just the intermittent presence of soft squishy humans that will run into it.
I guess every time we have a slam dunk solution to a construction problem, construction is plenty complex enough to leave us more work to do."

Bob Schulz re: SDSU Student Union 1/4/13

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CMAR Process and Documents

Construction

- Use of Contingency

  - ✓ Must be authorized by University
  - ✓ Costs per GC 6.01
  - ✓ No added CM markups, included in GMP
  - ✓ Itemize contingency accounting and balance on monthly pay request
  - ✓ Return unused contingency at the end of a project

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CMAR Process and Documents

Construction

- Project Savings
  - ✓ CM and subs are encouraged to come forward with VE ideas
- Final Project Accounting
  - ✓ Site Management Fee and OH&P are lump sum
  - ✓ Contingency is subject to audit
  - ✓ Each allowance is subject to audit
  - ✓ The total of all trade bids are subject to audit

CMAR Process and Documents

Construction

- Questions?

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Construction Manager At Risk

Hot Topics

May 14, 2013

CMAR Process and Documents

Hot Topics

- When is a project complete?

✓Can a NOC be filed before the final CO is written?

✓When can retention be released?

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CMAR Process and Documents

Hot Topics

- Replacement of CM or DA sub for poor performance
- Schedule review v. approval
  - ✓ Caveats to “approval” of schedule

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Hot Topics

- Executive conference calls – Decision tree
- Updates to GC's
- License classification A v. B (CSLB 7056, 7059b, 834a)

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Hot Topics

- SUAM Updates
  - ✓ Labor rate worksheets
  - ✓ Allowances
  - ✓ Labor Compliance – Online Submission of CPR
- Geotech Reports – Soils Contamination Reports

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CMAR Process and Documents

Hot Topics

- Changes to the PPR
  - ✓ Mandatory reference checks
  - ✓ Certification of bidding process to CPDC / PPPR
  - ✓ Use of PPR as a project checklist
- Phasing of Projects
- Burning Questions?

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Construction Manager At Risk

Innovation

May 14, 2013

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CMAR Process and Documents

Innovations

- AE Team responsible for estimates after schematics
- Adjusted the project cost guide
- Reduce Change order Markups by 1% on OCIP projects

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CMAR Process and Documents

Innovations

- Owner's Time Contingency
- SDSU CMAR / DB Hybrid
- CMAR MOU – Incentives

CMAR Process and Documents

Innovations

MEMORANDUM of UNDERSTANDING

Tri-Party Consensus Agreement

This three party Memorandum of Understanding (MOU) outlines key principles on which the Parties (Owner, Contractors, and Designers) will collaborate to align incentives, and define the project deliverables, objectives, working relationships, and terms of success for the CSU project.

The goals for the collaboration on this project include optimizing project results by, increasing value to the owner and increasing designer and contractor profits by reduction of waste and maximizing efficiency through all phases of the project.

The Parties agree to collaborate using the tools and methods as detailed below. This MOU may be modified by mutual agreement between the Parties as project conditions dictate.

CMAR Process and Documents

Innovations

BIM – Building Information Modeling

1. *Group 1 - Required BIM outcomes*
    a. Provide a stream of information to the project team facilitating coordination of the team's decision making and work.
    b. Reduce risk & increase efficiency of the project delivery process.
    c. Early involvement of CM in BIM use.
    d. Clash detection.
    e. As-builts / Campus Facilities deliverables: O&Ms; Warranties; spare parts; Blue-Beam hyperlinks to project data; use of COBIE; Asset-Works.
2. *Group 2 – Optional BIM outcomes*
    a. Estimating quantities of materials.
    b. Use of the provided BIM specification template to be adapted for project use.
    c. Use of the provided model progression specification template to be adapted for project use.
    d. Development of as-builts may be either by the CM or the AE. Final approval of the as-builts will remain the responsibility of the AE.

CMAR Process and Documents

Innovations

IPD - Integrated Project Delivery Methods and Tools

1. *Group 1 – IPD requirements*
    a. The Architects, Engineers, Contractors and Owners shall be on an equal footing. All parties shall organize and integrate their respective roles, responsibilities, and expertise to the projects best advantage.
    b. Clear and early communication regarding project scope and budget. Early alignment of scope, budget and schedule goals: "Expectation management" is the team's job.
    c. Set up a project decision tree with an executive committee to push decisions or disputes that make it up the tree. Daily "project team" decisions, weekly "core team" decisions, and monthly "executive team" decisions.
    d. Trust is critical to effective teams. Team members shall: demonstrate respect; create transparency; deliver predictable results; continuously improve; confront reality, take the "undiscussables" head on; clarify expectations; be accountable; listen first; keep commitments; extend trust.
2. *Group 2 – IPD Options*
    a. Having an AE decision maker on-site during construction full or part time.
    b. Regularly pre-scheduled team evaluations, including feedback to owner regarding owner performance.
    c. An on-site big room environment to promote integration of the construction team.
    d. A full or part time big room for preconstruction. A part time big room in the AE office is beneficial for pre-construction.

CMAR Process and Documents

Innovations

LEAN methods & tools

1. *Group 1 – Required LEAN methods and tools.*
    a. Target value design. Design to cost vs. cost the design.
    b. CMAR to work with team to avoid over design.
    c. Eliminate rework due to mis-communication.
    d. Pull and last planner scheduling techniques.
    e. Reduce RFI's through intensified pre-construction constructability efforts.
    f. Understand other team members processes and constraints
    g. Have fun! Make friends & build relationships.

CMAR Process and Documents

Innovations

1. *Group 2 – Optional LEAN methods and tools*
    a. Conceptual design alternatives and strategies as budget alternatives: prefabrication, modularization, workflow efficiencies, etc.
    b. A3 reports to summarize problems: state the problem, the background; the current state; the desired state; proposed measures to get to future state; 1 sheet of paper.
    c. Contractor to describe how they will facilitate and introduce efficiencies.
    d. Equipment sharing between sub-contractors.
    e. Reduce redundancy on construction document detailing vs. shop drawings with the use of D/A and D/B trade contractors.
    f. Kaizen improvements - Lessons learned - Continuous improvement.
    g. Start slow to work fast- predictable workflow increases speed with time.
    h. Tracking of planned percent complete as a measure of commitment keeping.
    i. Set Based design - Make design decisions @ last responsible moment.
    j. Suggestion blackboards.
    k. MBWA – manage by walking around.
    l. PDCA: plan; do; check; adjust
    m. Dashboard Project Reports.
    n. Use provided LEAN kickoff meeting agenda template. Use the agenda as part of an “onboarding process” to indoctrinate every new team member.

CMAR Process and Documents

Innovations

Owner Responsibilities

1. Group 1 – Required Owner responsibilities
    a. CSU will provide a strong and engaged Project Manager.
    b. CSU will provide the Definition of Value for the project.
    c. CSU will be represented by 1 decision maker, representing 4th party-user groups so project goals are consistent.
    d. CSU will promote and facilitate a mutual trust environment
    e. CSU will promote transparency of all information to all team members
    f. CSU will make decisions in a timely way

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CMAR Process and Documents

Innovations

Incentives (Discussion items)

1. *Group 1 – Required Incentives?*
    a. Incentives must be shared with the team members & sub-contractors. Sharing of incentives as proposed by the CM & AE may be a part of the RFP evaluation.
    b. "Intrinsic" incentives funded by the Parties. Incentives that appeal to intrinsic needs for approval and thanks:
        - BBQ's for the entire team when specific goals are met.
        - Gift certificates drawn from a hat & given away @ BBQ's to reward team performance.
        - Commendation letters distributed @ BBQ's for high performers.
        - Others?
    c. There will be no dispute resolution for incentive awards. CSU is the final authority.
    d. Project-Centric thinking is essential. Team must succeed before any individual succeeds
    e. Use of D/A or D/B trades incentivizes those trades as they are selected on value based criteria.
    f. CSU evaluations of contractor performance will be shared between Campuses' and may be shared with other public entities. Evaluations will be based on team performance, not individual contractor performance.

CMAR Process and Documents

Innovations

1. *Group 2 – Optional Incentives?*
   a. 75% CSU / 25% (trade?) contractor split on construction efficiencies that reduce project cost, or value engineering ideas brought forward during construction and approved by CSU.
   b. A performance based incentive program may be funded by contingency preservation and through savings by reduction in the final cost of the work. A fixed percentage of these savings are shared with the project team on a basis as proposed by the AE & CM in the RFP(s). These incentives reward superior performance based on criteria with examples including:
      - Hitting the construction budget with the GMP.
      - Reduction in RFI's & Returned submittals.
      - Mutual team evaluations based on: trust, reliability, no-blame environment.
      - Hitting schedule milestones: completion of steel erection; permanent power; building dried in; completion of punchlist.
      - Hitting the planned % complete as the project progresses.
      - 1 year after NOC: number of warranty issues and building performance.
      - Safety success.
      - Achieving owners' definition of success.
      - Innovative construction processes.

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Thank You

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