



# January 6, 2009

## Construction

### Project Delivery Methods

Jeffrey Turner  
Bart Hall

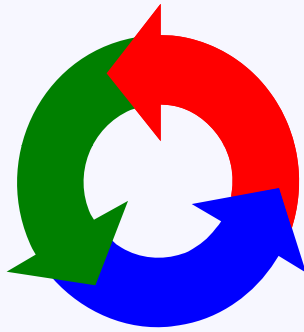


- 
- **Jeffrey Turner** – Senior Vice President
    - Senior Vice President
    - Background in Real Estate Finance
    - Adjunct Faculty, Johns Hopkins University
    - Experience on Over 150 Campuses & Over 100 Student Housing Projects
    - NACUBO Faculty on Public Private Partnerships
  
  - **Bart A. Hall** - Senior Project Manager
    - Background in Urban Higher Ed. / Student Affairs / Union Mgmt.
    - Planning experience at UVa-Wise, Rutgers U., Kutztown U. & more than 25 other projects

Student &  
Faculty/Staff  
Housing



Student Unions/  
Campus Edge



Athletic/  
Recreation Facilities

# ***Brailsford & Dunlavey***

## ■ Experience

- Over 450 university projects at over 300 institutions
- Planning Through Program Management
  - PM Advisor
  - PM Assist
  - Full Service PM

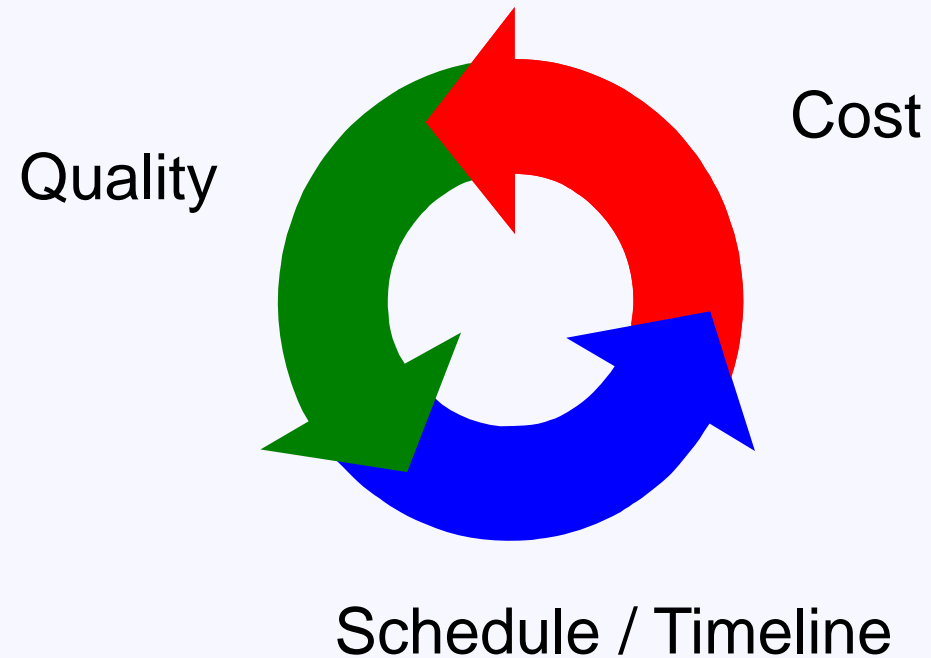
## ■ Focus

- “Quality of Life” projects

## ■ Staff

- Diverse Skill Set & Backgrounds

# The Three Parameters



**CHOOSE 2!!**



# Design Phases

- Schematic Design – 20%
- Design Development – 15%
- Construction Documents & Bidding– 40%
- Construction Administration – 25%

\* Percentages indicate typical % of work effort and fee



# Implementation

## Pre-Implementation

### POINT "A" Starts

#### with:

- Master Plan
- Land Acquisition
- Financing
- Market Analysis
- Project Feasibility/Financials
- Programming
- Business Planning
- RFP Development

## Implementation

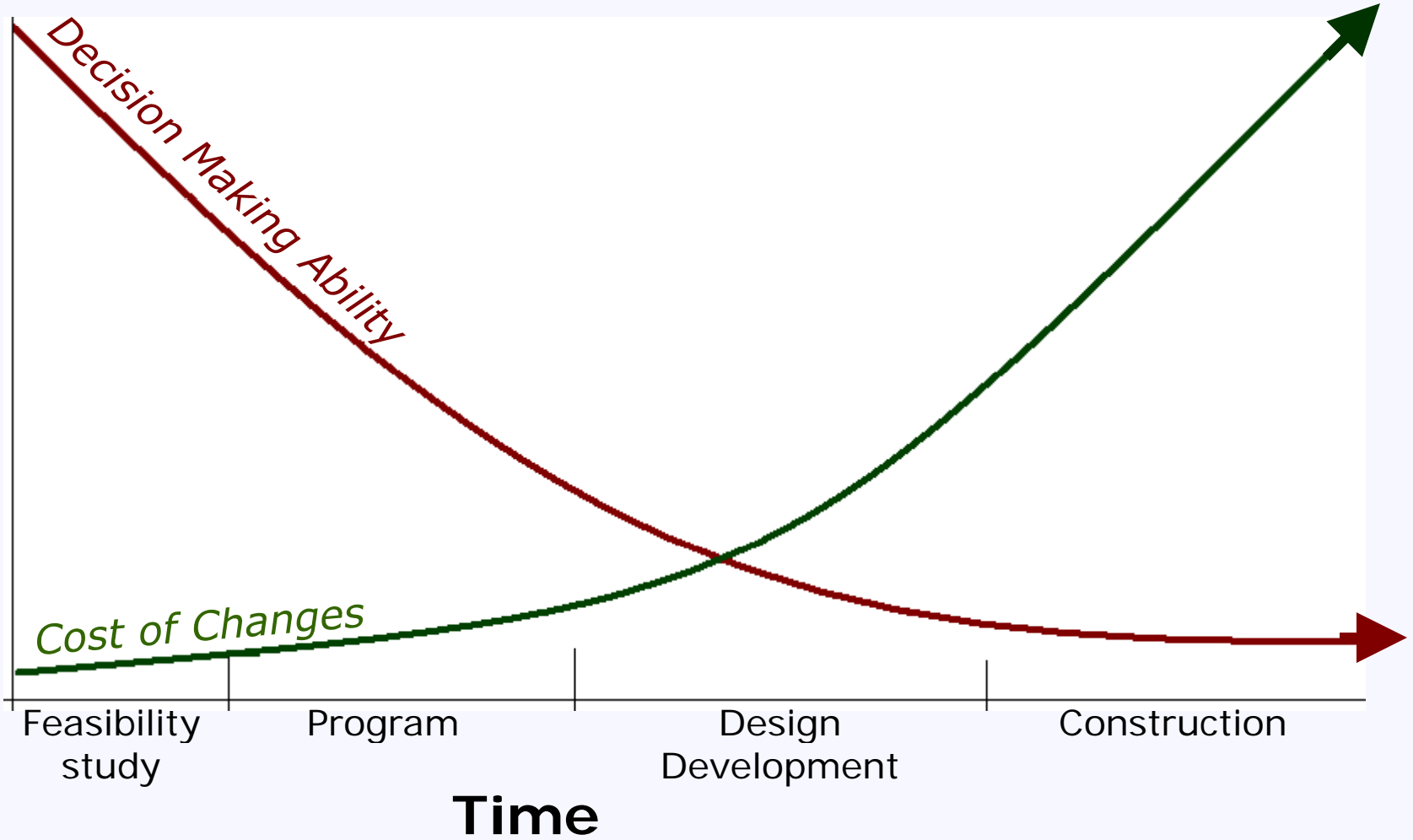
### POINT "B" Starts

#### with:

- Design
- Construction
- ...And ends with...
- Satisfied Occupancy



**Effort**



Feasibility study

Program

Design Development

Construction

**Time**



# Key Players

## ■ Architect

- Acts Reasonably and Prudent
- Usually acts as agent
- Legal focus is primarily on decision process
- Architects “endeavor to”
- Architects “retain consultants”
- Architects provide “services”
- Performance is evaluated on standard of reasonable care

## ■ Contractors

- Guarantee Performance
- Usually Act as Vendors
- Legal focus is on results
- Contractors “will achieve”
- Contractors hire “subcontractors”
- Contractors do “work”
- Performance is evaluated on a no fault standard; the sole issue is conformance

Source: The Architect’s Handbook of Professional Practice, 13<sup>th</sup> Edition.



# Project Delivery Methodologies

1. Design-Bid-Build
2. Construction Management
  - a. CM as Advisor (Program Manager)
  - b. CM as Agent
  - c. CM as Builder (CM @ Risk)
3. Design-Build
  - a. Design-Build by Developer
  - b. Bridging Documents

## Note:

No project delivery method is inherently superior to any other.

Regardless of the delivery methodology, a Client can have a highly satisfactory outcome mostly dependant on:

1. The integrity of the pre-implementation process
2. The relationship between the design documents and the design intent
3. The completeness and clarity of the design documents
4. Clear contractual relationships
5. The relationships of all involved
6. Experience

# Basic Responsibilities

## Owner Responsibilities:

- Project finance
- Provide program of requirements
- Provide accurate existing conditions data for site
- Provide testing & inspections
- Review & approve architects' CDs
- Provide timely decisions on points not delineated in contract documents
- Ultimate decision responsibility for schedule & cost

## Architect Responsibilities:

- Provide Contract Documents
- Coordination of design consultants
- Assistance with preliminary cost estimates
- The approvals process
- Comment on builder's conformance to documents & design intent through construction
- Project finance Assistance thru bidding phase
- Construction administration

## Builder Responsibilities:

- Provide Lump Sum or GMP Cost Guarantee
- Obtain Permits
- Guide/Manage construction process
- Coordinate Subs
- Fulfill requirements of the Construction Documents
- Guarantee quality and schedule

The Owner may elect to undertake project management duties

\* or \*

May designate either the architect or builder to undertake these duties

\* or \*

May hire a separate project management entity to act as his/her agent throughout the process

There may one architect or a design team comprised of the design architect, architect of record, etc.

BUT, there is one contractual relationship between the primary architect and the Owner.

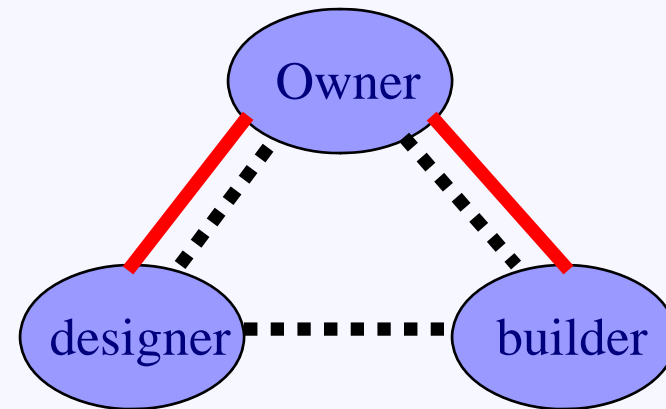
The Lowest Bid does not mean the lowest Cost.

Aside from the completeness of the Contract Documents, the best way to manage cost risk is to hire a contractor with a solid reputation for delivering:

ON TIME  
ON BUDGET

# Traditional Methods

- Design-Bid-Build
  - Most common in the industry
  - Three phases
  - Separate contracts between Owner/Architect (AIA B141 or B151) and Owner/Builder (AIA 201)



Project Communication

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Contracts

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# DESIGN BID BUILD

## ADVANTAGES

- Very Familiar Process
- Clear Role of All Parties
- More Control of Design
- Clear Understanding of Construction Documentation

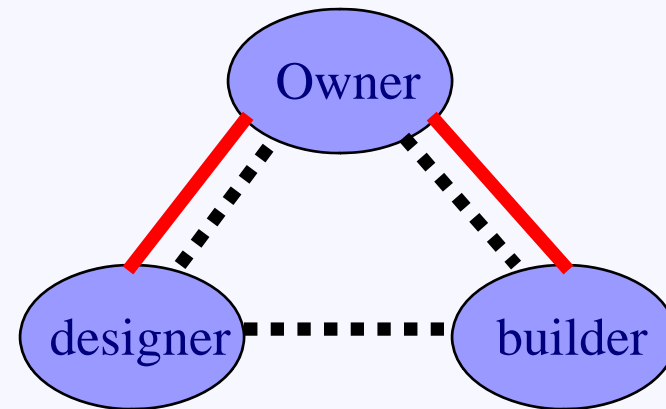
## DISADVANTAGES

- Time Consuming (Time is Money)
- Limited Communication Between Architect & Contractor
- May Incur Change Orders & Delays

# Traditional Methods

## ■ Design-Bid-Build

- Most common in the industry
- Three phases
- Separate contracts between Owner/Architect (AIA B141 or B151) and Owner/Builder (AIA 201)



Project Communication

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Contracts

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- ## ■ Partnering: A Positive Dispute Prevention Method that Emphasizes Cooperation Among All the Parties and Shared Management of Risk.

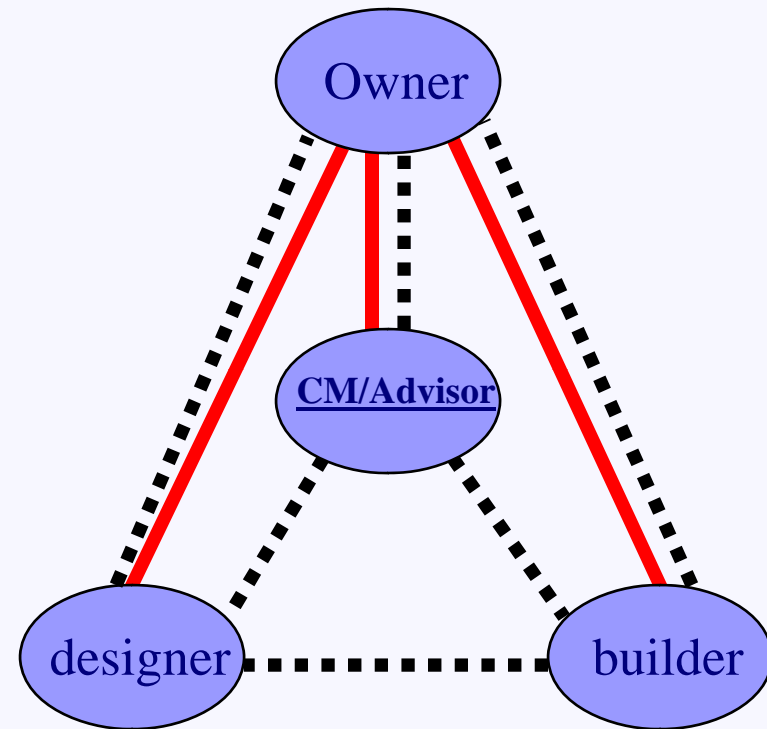
# CM Advisor Method

## ■ Design-Bid-Build

- Most common in the industry
- Three phases
- Separate contracts between Owner/Architect and Owner/Builder

## ■ Construction Manager

- Three Types:
  - CM as Advisor (Program Mgr)
  - CM as Agent
  - CM as Builder
- Same three phase structure as before



Project Communication

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Contracts

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# DESIGN BID BUILD w/ CM as Advisor

## ADVANTAGES

- Owner Maintains Direct Contract Relationships
- Careful Monitoring of Cost & Schedule
- Project Oversight

## DISADVANTAGES

- Added Cost of Consultant
- Confusion from Traditional Method
- More Complex Relationships

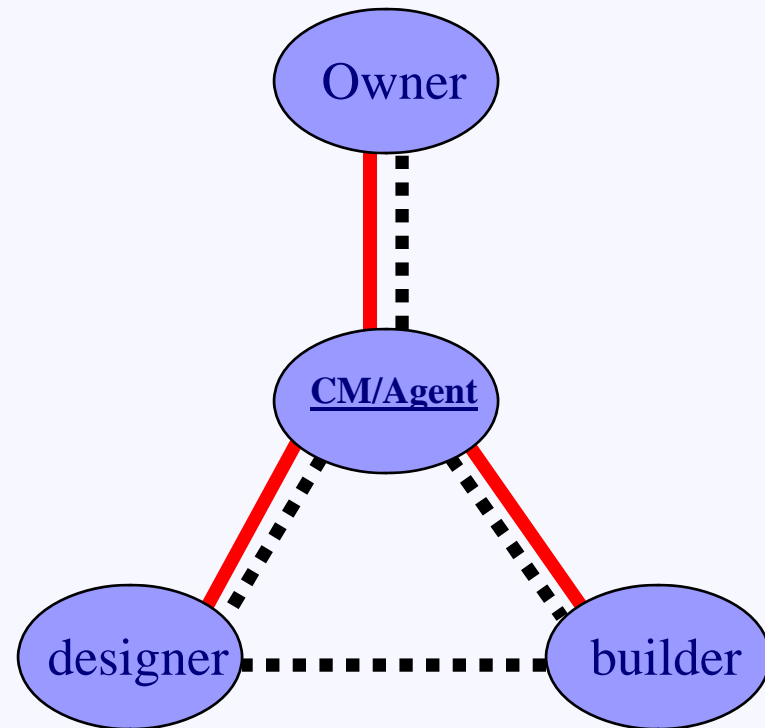
# CM Agent Method

## ■ Design-Bid-Build

- Most common in the industry
- Three phases
- Separate contracts between Owner/Architect and Owner/Builder

## ■ Construction Manager

- Three Types:
  - CM as Advisor
  - **CM as Agent**
  - CM as Builder
- Same three phase structure as before



Generally, this method is utilized when the Owner is in a different geographic location than the project and desires greater on-site representation and therefore empowers a CM to act as Agent.





# DESIGN BID BUILD w/ CM as AGENT

## ADVANTAGES

- Careful Monitoring of Cost & Schedule
- CM Takes on Contractual Relationships
- Can Shorten the Schedule
- Oversight

## DISADVANTAGES

- Owner Does Not have Direct Communication with Architect or Contractor
- Added Cost of Consultant
- Confusion from Traditional Method
- More Complex Relationships

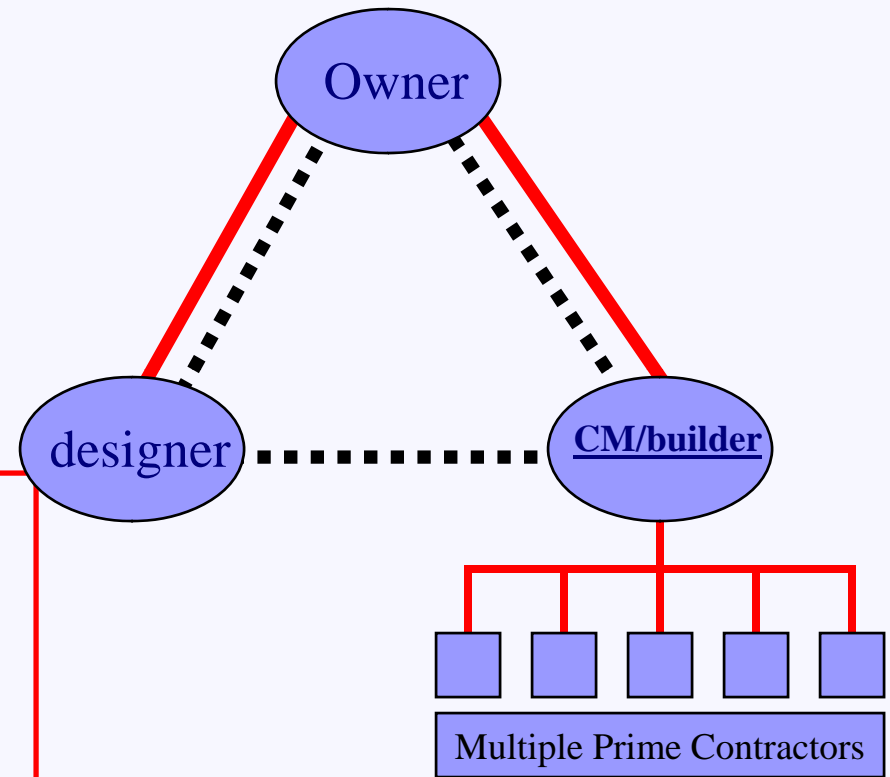
# CM Builder Method

## ■ Design-Bid-Build

- Most common in the industry
- Three phases
- Separate contracts between Owner/Architect and Owner/Builder

## ■ Construction Manager

- Three Types:
  - CM as Advisor
  - CM as Agent
  - **CM as Builder (at Risk)**
- Same three phase structure as before




Project Communication

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Contracts

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# DESIGN BID BUILD w/ CM as Builder (@ Risk)

## ADVANTAGES

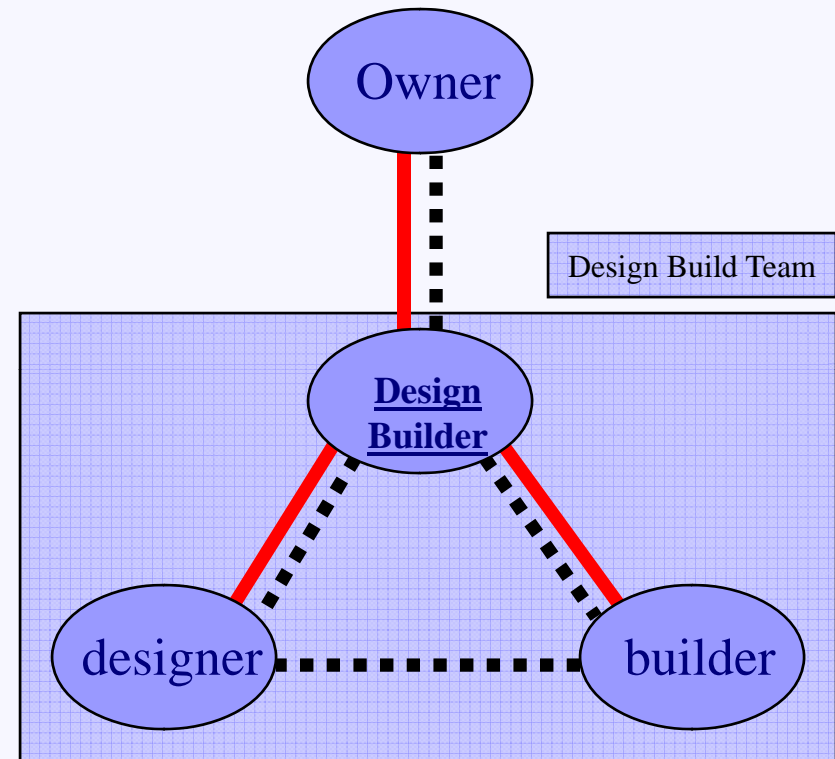
- Careful Monitoring of Cost & Schedule During Design
- CM Takes on Contractual Relationships
- Can Shorten the Schedule
- Oversight
- Can Guarantee Cost

## DISADVANTAGES

- Reduced Ability to Control Construction Quality
- Change Orders Due to Low Bidding of Contractors
- Confusion from Traditional Method

# Design Build

- Design Build
  - Owner can contract with single DB Entity
  - Most prevalent in private sector
  - 2 Phase process: Design / Build



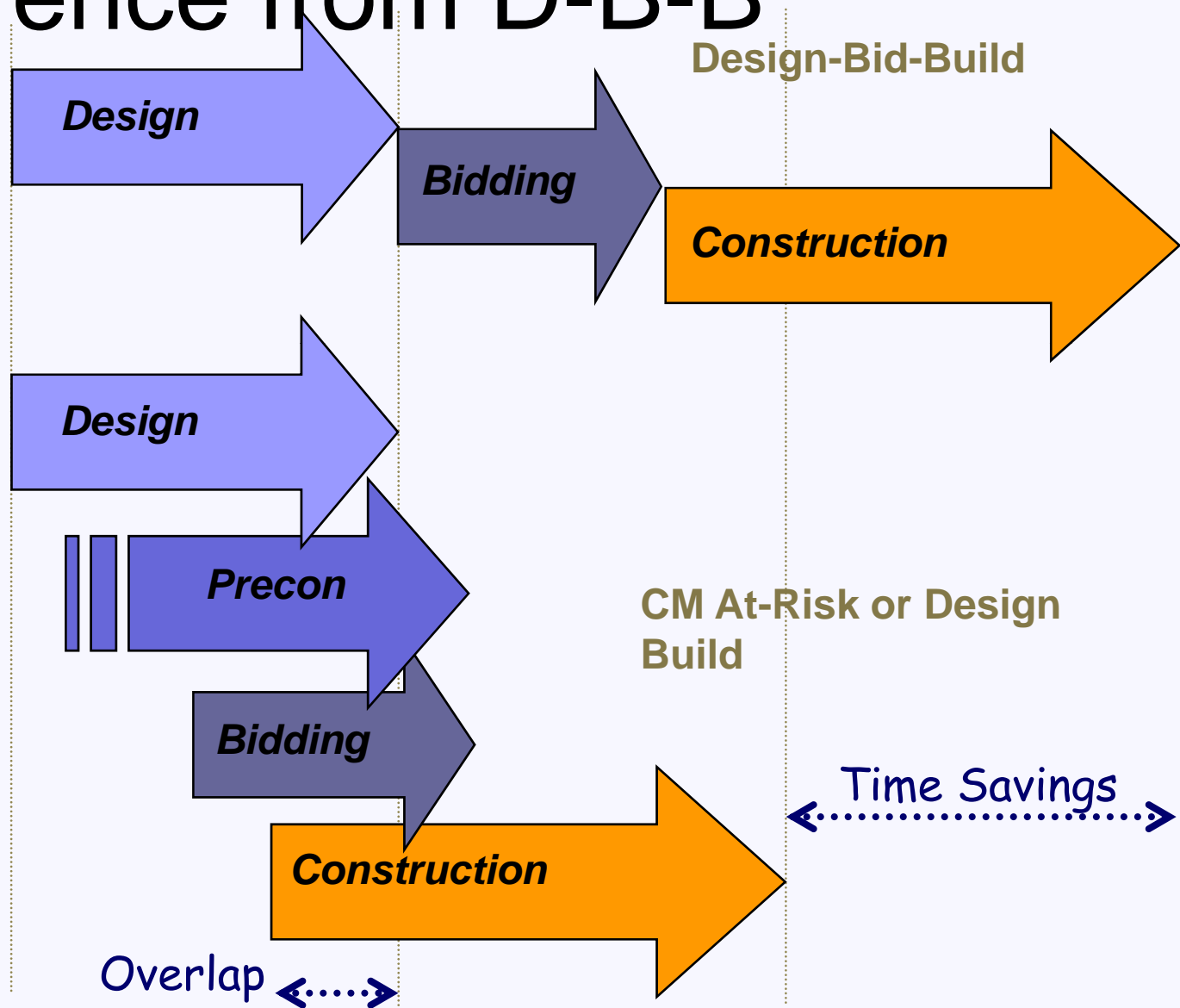
Project Communication

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Contracts

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# Difference from D-B-B





# DESIGN BUILD

## ADVANTAGES

- Faster Schedule
- Single Point of Contact  
/ Responsibility
- Reduces Change Orders
- Reduces Construction Delays

## DISADVANTAGES

- Owner's Inexperience with the Process
- Owner's Perceived Lack of Control of  
Design & Quality
- Less Direct Connection with the Architect

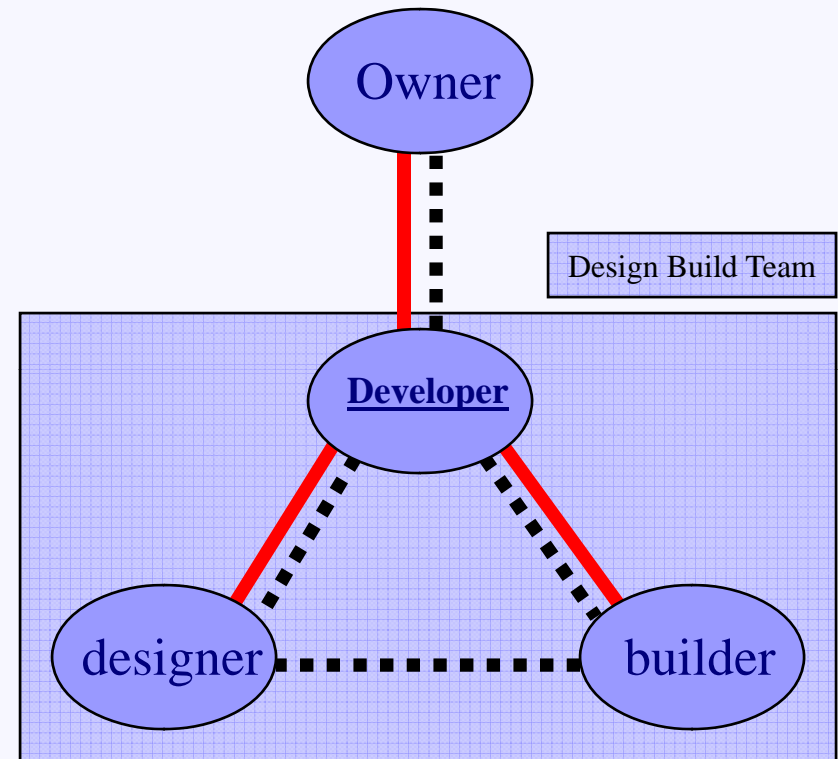
# Design Build

## Design Build

- Owner can contract with single DB Entity
- Most prevalent in private sector
- 2 Phase process: Design / Build

### 1. Design Build by Developer

- Often called “Turnkey”, sale/leaseback
- Responsible for Acquisition, Design, Build, Financing, etc



Project Communication

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Contracts

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# DESIGN BUILD w/ Developer

## ADVANTAGES

- Single Point of Contact
- Reduces Financial & Legal Risk
- Early Guarantee of Construction Costs
- Shortened Schedule

## DISADVANTAGES

- Owner's Inexperience with the Process
- Lack of Direct Owner Participation
- Lack of Control
- Complexity
- Difficulty in Preparing Adequate Pre-selection of materials and performance standards





## To Utilize a developer or not:

- Speed (Minimize various approvals)
- Financing
- Land Acquisition
- Management
- Development Expertise
- Guaranteed Maximum Price (GMP)
- Guarantee Schedule/ Liquidated Damages

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**Risk Transferred to the GC**

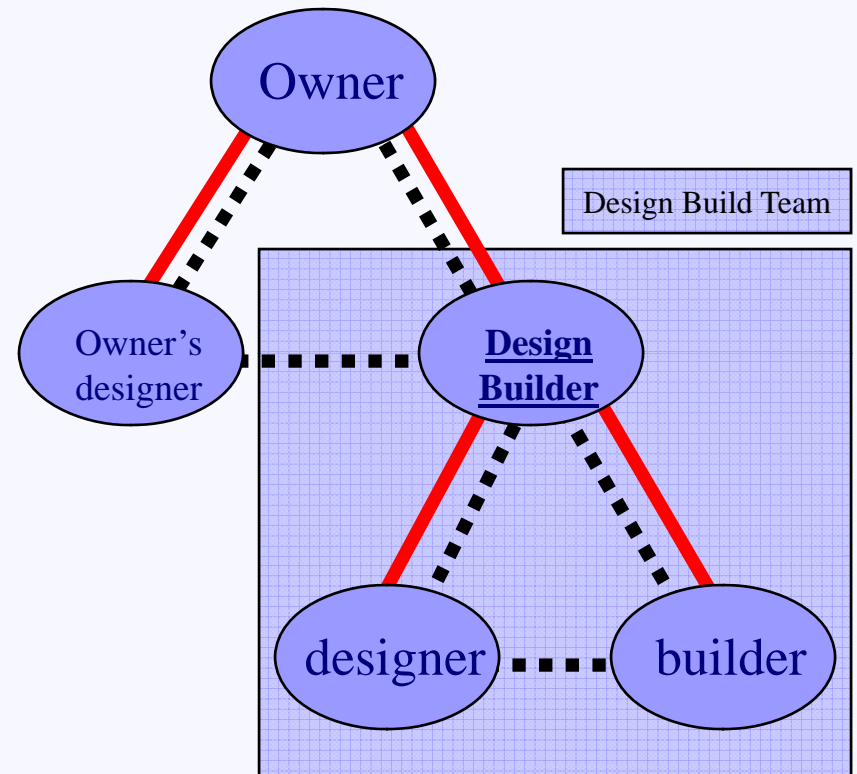
# Design Build

## Design Build

- Owner can contract with single DB Entity
- Most prevalent in private sector
- 2 Phase process: Design / Build

## 2. Design Build w/ Bridging

- Combines Strengths of DBB and DB



Project Communication

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Contracts

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# DESIGN BUILD w/ Bridging

## ADVANTAGES

- Focused Attention to the Design
- Competitive Bidding
- Single Point of Responsibility
- Pre-selection of materials and performance standards

## DISADVANTAGES

- Owner's Inexperience with the Process
- More Management by the Owner
- Complexity
- Conflicts Between Original Architect and Design Builder
- Unsure of Any Cost Savings



# Example #1

University of West Florida, which has strict design standards, wants to build a new laboratory building on campus.

What type of Delivery Method should they use?



# Example #2

The Gap is starting to build stores across the country.  
They want each store to have the same architectural  
feel and identity.

What type of Delivery Method should they use?



# Example #3

Pensacola just received word from MLB that they have been selected as a relocation site for a new baseball stadium contingent on building a new stadium by opening day (April) 2011.

What type of Delivery Method should they use to build a new stadium?

# DESIGN BID BUILD BUDGET

<b>HARD COSTS</b>		<i>Cost Per Bed</i>	<i>Cost Per SF</i>
1 Land Acquisition	\$2,000,000		
2 Construction Contracts			
A. Enclosed Building	\$22,500,000	\$45,000	\$150.00
B. Demolition, Excavation & Site Preparation	\$ 637,490	\$1,275	\$4.25
C. Site Utilities & Infrastructure	\$500,000	\$1,000	\$3.33
D. Parking (500 spots @ \$3,500)	\$1,750,000	\$3,500	\$11.67
E. Landscape Allowance	\$250,000	\$500	\$1.67
3 Furniture, Fixtures & Equipment	\$1,000,000	\$2,000	\$6.67
Subtotal - Hard Costs	\$28,637,490	\$57,275	\$190.92
<b>SOFT COSTS</b>			
4 Architectural & Engineering Fees	\$2,148,000	\$4,296	\$14.32
5 Additional Architectural & Engineering Services	\$214,800	\$430	\$1.43
6 Testing Fees, Surveys , Etc.	\$50,000	\$100	\$0.33
7 Local Fees & Permits	\$25,000	\$50	\$0.17
8 Start-Up Expenses	\$100,000	\$200	\$0.67
9 Direct Project Expenses	\$100,000	\$200	\$0.67
10 Project Contingency	\$1,563,765	\$3,128	\$10.43
11 Construction Period Interest	\$1,150,736	\$2,301	\$7.67
12 Developer's Fee	\$1,288,687	\$2,577	\$8.59
13 Project Oversight	\$985,000	\$1,970	\$6.57
14 Debt Issuance Fees	\$702,255	\$1,405	\$4.68
15 Credit Insurance	\$716,300	\$1,433	\$4.78
Subtotal - Soft Costs	\$9,044,542	\$18,089	\$60.30
<b>Total Project Costs</b>	<b>\$37,682,000</b>	<b>\$75,364</b>	<b>\$251</b>



# DESIGN BUILD BUDGET

		<i>Cost Per Bed</i>	<i>Cost Per SF</i>
1 Design/Build Contract (including A/E fees)	\$31,800,000	\$63,600	\$164.95
<b>DESIGN/BUILD CONTINGENCY</b>			
2 Project Contingency (5% of project cost)	\$1,590,000	\$3,180	\$8.25
<b>OTHER PROJECT COSTS</b>			
3 Site Demolition Costs (64,000 * \$8/sf)	\$512,000	\$1,024	\$2.66
4 Other Surveys & Tests	\$150,000	\$300	\$0.78
5 Furniture, Fixtures & Equipment	\$1,000,000	\$2,000	\$5.19
6 Master Architect/Program Fees	\$250,000	\$500	\$1.30
7 Honorarium	\$100,000	\$200	\$0.52
8 Other Miscellaneous Costs	\$500,000	\$1,000	\$2.59
<b>ADMINISTRATIVE COSTS</b>			
9 Project Management	\$1,000,000	\$2,000	\$5.19
<b>Total Project Costs</b>	<b>\$36,902,000</b>	<b>\$73,804</b>	<b>\$191.42</b>

# Selection Process Options



1. Low Bid Approach
  - Meet Qualification Requirements
  - Lowest Bid Wins
2. Qualifications Approach
  - Limited Documentation
  - Price Not a Factor / Most Qualified Team Wins
3. Price Ceiling Approach
  - Only price ceiling published
  - Mix of Price and Quality to Determine Winner
4. Fixed Price / GMP Approach
  - Price is Known and Fixed
  - Best value within the price
  - Up to DB team to find the best value

# Selection Process Options

1. Low Bid Approach
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B. Fixed Price/GMP Approach

  - Price is Known and Fixed
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Most state schools  
familiar with this option

# Selection Process Options

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National Developers  
Favorite Approach

# Selection Process Options

1. Low Bid Approach
  - Meet Qualification Requirements
  - Lowest Bid Wins
2. Qualifications Approach
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  - Price Not a Factor / Most Qualified Team Wins
3. 

- A. Price Ceiling Approach
    - Only price ceiling published
    - Mix of Price and Quality to Determine Winner
  - B. Fixed Price/GMP Approach
    - Price is Known and Fixed
    - Best value within the price
    - Up to team to find the best value

Two Different Versions of  
"Best Value" Approaches

# Approach → Option 3: Price Ceiling Approach

SAMPLE: Team Selection Formula (if price is a variable)

<u>Team</u>	$\frac{\$GMP}{\text{Quality Points}}$	X 1000 (lowest score wins)
A	$\frac{\$40M}{140 \text{ Pts}}$	X 1000 = 286
B	$\frac{\$38.9M}{138 \text{ Pts}}$	X 1000 = 282 ← <b>Winning Score</b>
C	$\frac{\$37.3M}{128 \text{ Pts}}$	X 1000 = 292

# DBT Selection Process Options

1. Low Bid Approach
  - Meet Qualification Requirements
  - Lowest Bid Wins
  
2. Qualifications Approach
  - Limited Documentation
  - Price Not a Factor / Most Qualified Team Wins
  
3. A. Price Ceiling Approach
  - Only price ceiling published
  - Mix of Price and Quality to Determine Winner

## B. Fixed Price/GMP Approach

- Price is Known and Fixed
- Best value within the price
- Up to DB team to find the best value

If a facility can support certain level of debt service, the value (quality) should be maximized within the amount.



# Summary

1. No Project Delivery Method is superior
2. Each project should be analyzed individually
3. Develop a clear selection process from the beginning





# January 8, 2009

## Construction Overview

### Project Delivery Methods

Jeffrey Turner  
Bart Hall

