



Comparison of Project Delivery Methods

gkkworks partners with clients to improve the built environment through creative and adaptive planning, design and construction solutions that respond to our clients' culture, business and community.



Delivery Methods: Basics

- Project delivery consists of planning, design, construction and other services necessary for organizing, executing and completing a building facility
- What are the fundamental decisions that an owner must make?
 - What type of project delivery method to use?
 - What will be the procurement method?
 - What will the contract be like?
- Generally 3 parties are involved in the process:
 - Owner
 - Designer
 - Builder



Delivery Methods: Types

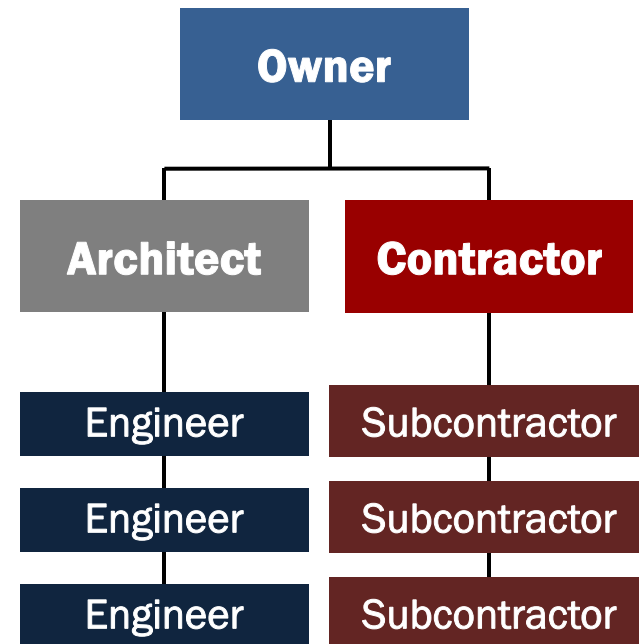
- **Types of Project Delivery**
 - Design-Bid-Build
 - Construction Management Multi-Prime (CM MP)
 - Construction Management-at-Risk (CM@Risk)
 - Design-Build (DB)

- **Other Concepts**
 - Agency CM: Add on service that an Owner can use to add expertise to any type of delivery
 - Lean (Alliance Contracting): Overlay to any delivery method that attempts to reduce the redundant efforts (waste) associated with the current delivery process
(Lean can also be applied to CM Multi-Prime, CM@Risk and Design-Build project deliveries)



Delivery Methods: Design-Bid-Build

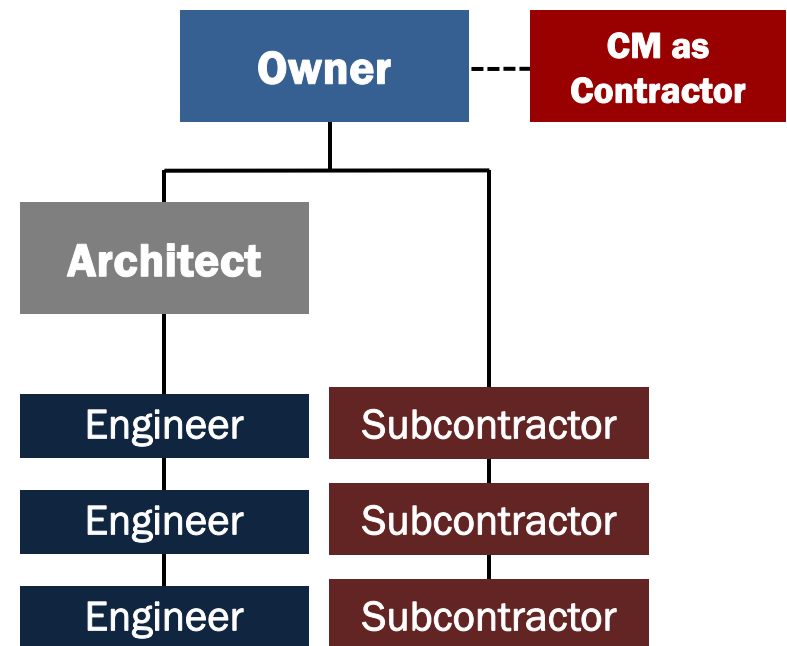
- **Characteristics**
 - Two contracts (Architect & Contractor)
 - Best understood
 - Linear sequence of work (longest delivery)
- **Primary Reason to Choose**
 - Retain control of design
 - Procurement laws are well defined
 - Low first cost (Bidding)
- **Disadvantages**
 - Final cost changes: Owner responsible
 - Most litigious
 - Contractor has no input to project





Delivery Methods: CM-Multi-Prime

- **Characteristics**
 - Many contracts (Architect, Contractor, Subcontractors)
 - Linear design
 - CM is selected on qualifications
- **Primary reason to choose**
 - Retain control of design
 - Contractor involved early
 - Combine fast track and lowest bids
- **Disadvantages**
 - Owner responsible for changes, overlaps and gaps in scope
 - Lack of subcontractor involvement
 - Exposure to CM's lack of proper oversight

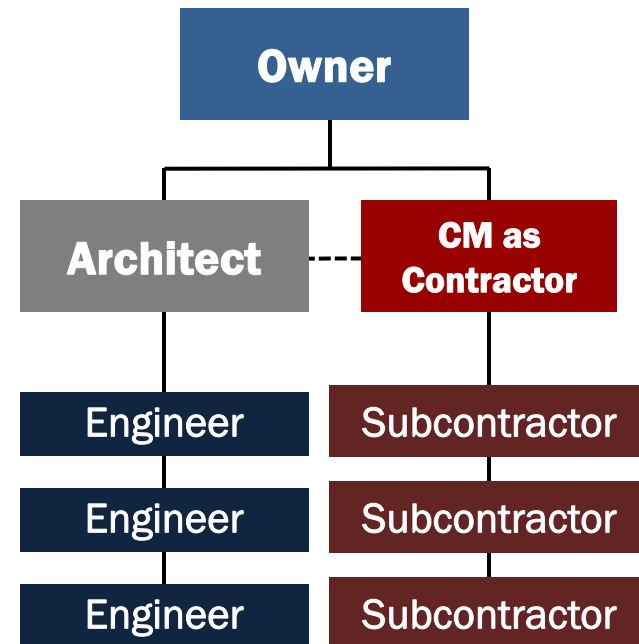




Delivery Methods: CM@Risk

Characteristics

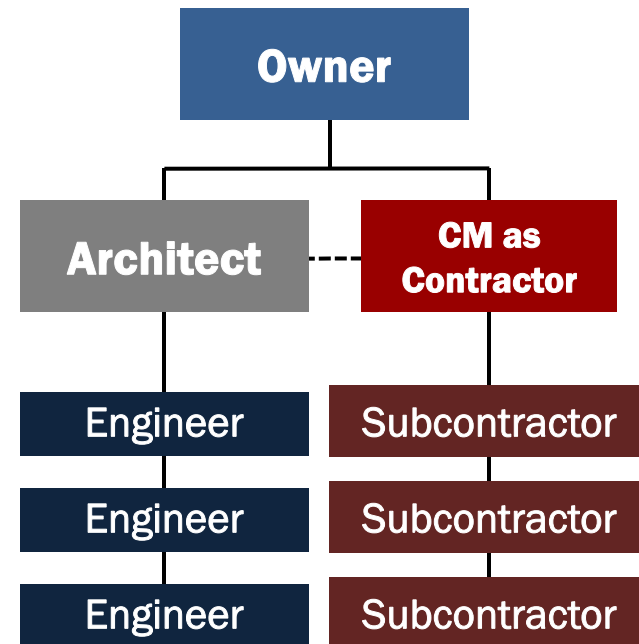
- Two contracts (Architect & Contractor)
- CM is selected on qualifications and fees
- Some construction risks are transferred to GC
- Similar to CM Multi-Prime for selection and management of the work
- Open book on costs (subcontractor and supplier payments) and procurement process
- Flexibility to price the project
- Subcontracts are re-assigned to the CM
- Bonding can be for the entire scope of the work (GC and subcontractors)
- Risks can push the CM not to act as the agent of the Owner





Delivery Methods: CM@Risk

- Primary reason to choose
 - Retain control of design
 - Contractor involved early
 - Flexibility to price the project
- Disadvantages
 - Owner responsible for changes
 - Owner's qualification-based selection of CM
 - Architect may not take input from CM during design

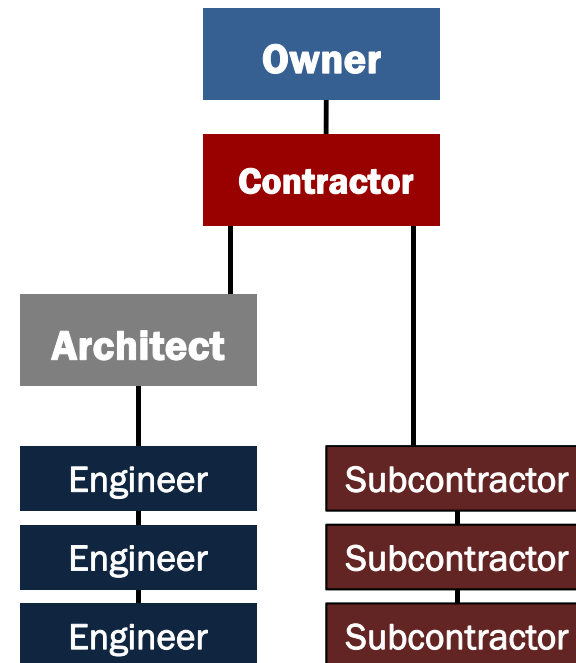




Delivery Methods: Design-Build

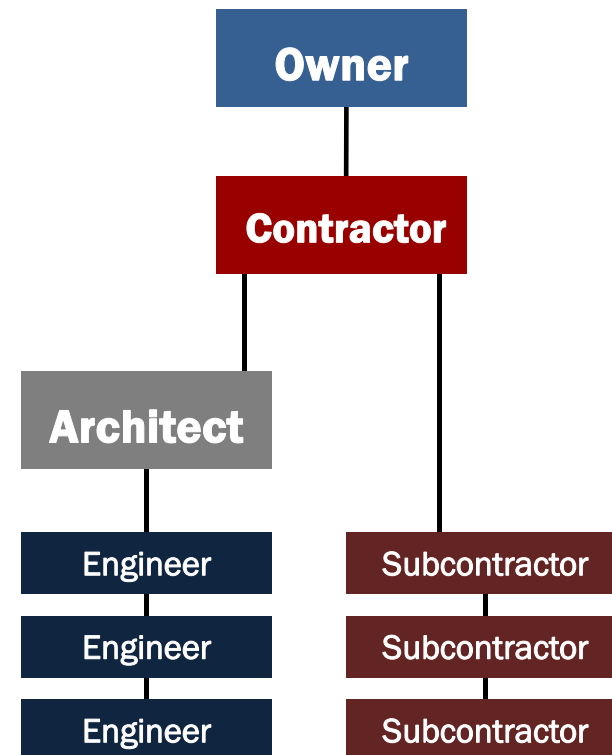
■ Characteristics

- Single point of contact/responsibility
- Often is the fastest delivery
- Most cost effective
- Need a well defined scope
- Need for timely decisions
- Must effectively administer design-build process





- **Benefits to the Owner**
 - Owner retains control of design
 - Construction input occurs during the design process
 - Overlaps & gaps in scope are identified during pre-construction
 - Cost benefit of procuring the construction directly from the trades
 - There are no mark-ups on subcontracts or on changes
 - Improved schedule due to early resolution of design and construction issues
 - Packaging of work can allow for construction to start early
 - Tighter control to adhere scope budget
 - CM as Owner's representative manages the construction in the Owner's best interest

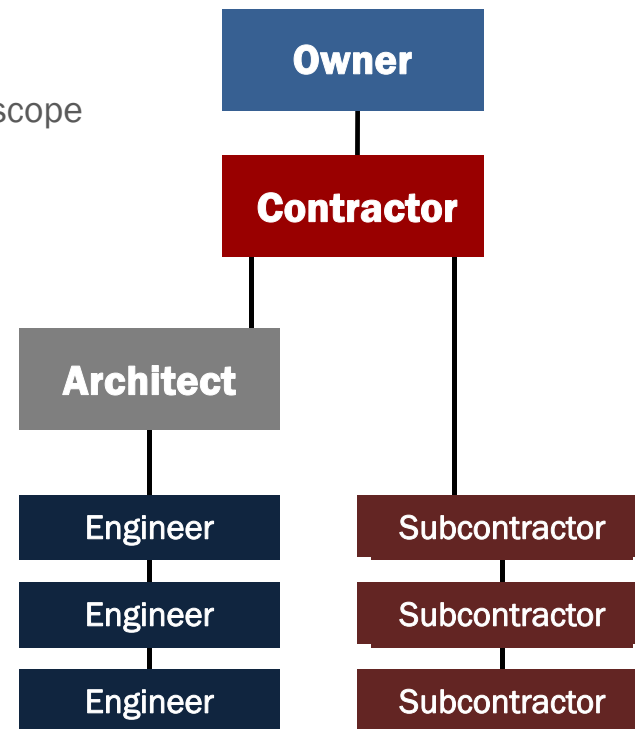




Design-Build: Disadvantages

■ Disadvantages

- Owner responsible for changes, overlaps and gaps in scope
- Exposure to CM's lack of proper oversight
- Subcontractors may be brought into project late in the process
- Need up-front program & performance criteria
- Owner needs to manage decisions on quality
- Owner is pushed for early decisions

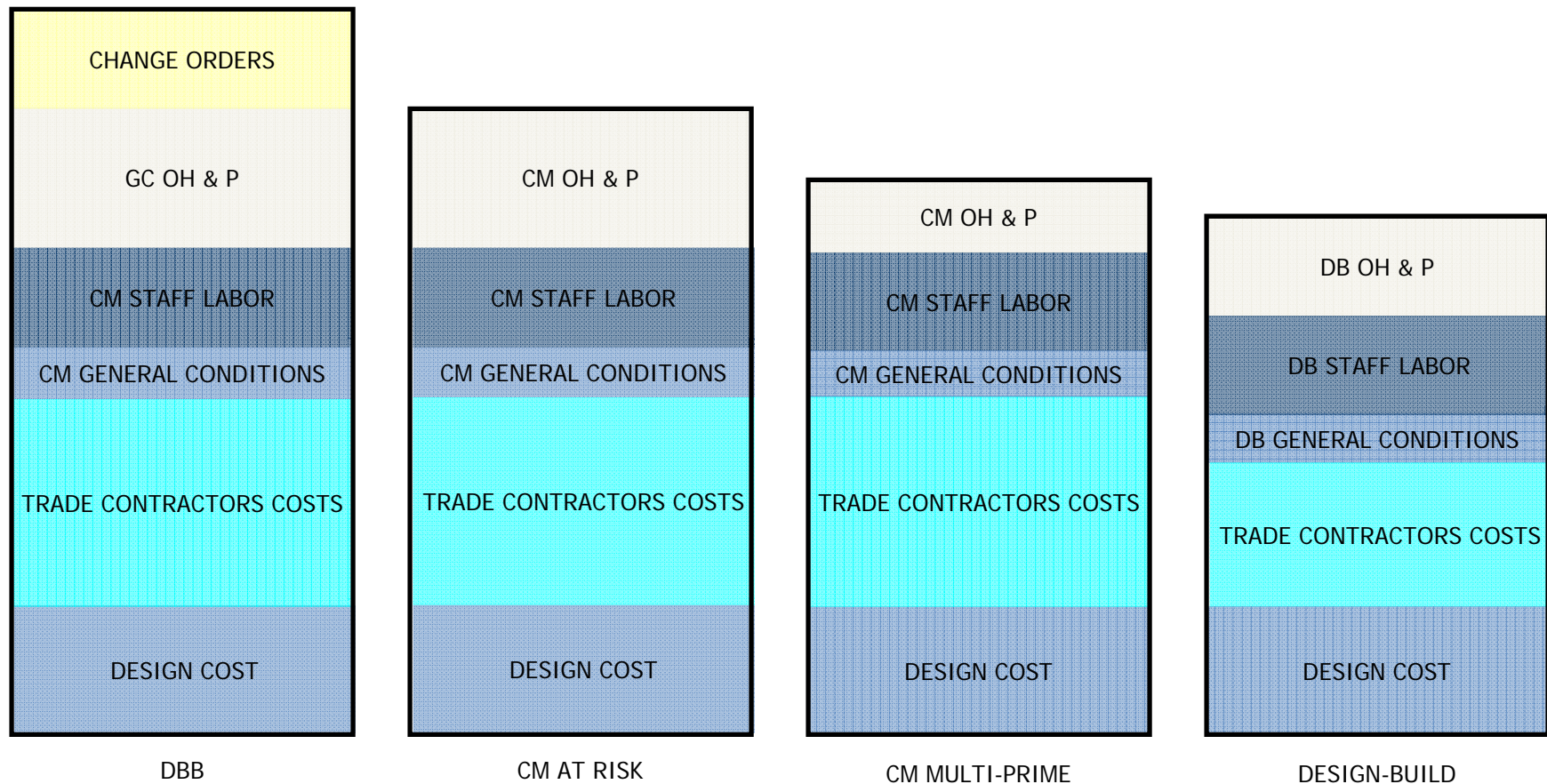




Penn State CII Study

- Construction Industry Institute study of 351 projects in 37 states
- Compared the cost, schedule and quality performance of DBB, CM@R and DB deliveries
- Findings:
 - DB cost at least 6% less than DBB
 - DB is at least 33% faster than DBB
 - DB provides at least 10% better quality than DBB

Delivery Methods: Cost Analysis



Note: DB costs at last 4.5% less than CM@R and 6% less than DBB (CII Study)

Delivery Methods: Delivery Speed

Design-Bid-Build



Agency CM



CM Multi-prime – CM at Risk



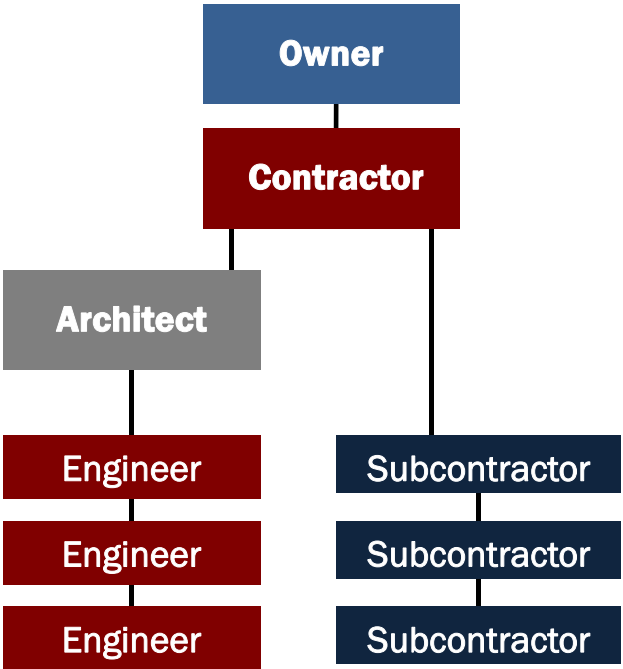
Design Build



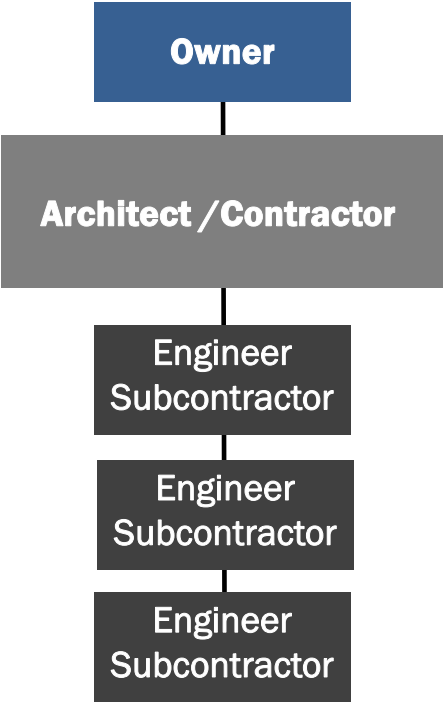
Note: DB delivery speed is at least 23% faster than CM@R and 33% faster than DBB (CII Study)



Typical Design-Build Team



Integrated Team





Advantages of an Integrated Team

- What are the advantages of an integrated team?
 - Architect and contractor are one entity (single point of responsibility)
 - Experts in design and construction contribute to ALL phases of the project
 - Owner can tailor the best of CM-Multi-Prime, CM@Risk and Design-Build
 - Allows for reduction of costs by eliminating redundant efforts