

## Workshop M1

*Monday, October 29, 9:00 a.m.–noon and 1:30–4:30 p.m.*

# **INTRODUCTION TO CONTRACTING METHODS**

Presented by



**G. Edward Cassady III**  
Executive Vice President,  
General Counsel and Secretary  
BE&K, Inc.



**Bruce J. Moldow**  
Executive Vice President/  
Chief Legal Officer  
Moss & Associates

For those new to construction risk management, this workshop provides an overview of construction contracting methods. Learn how contracts are let, phases of a typical construction project, practical differences in construction methods, and the different risks they pose for contractors. You will leave this session with a better understanding of all that happens on the front end of a construction project, which is essential to understanding the risk management and insurance issues they present. This workshop is ideal for those with insurance or risk management backgrounds who need to get up to speed on the construction industry.

- Reviews methods of project delivery, including design-bid-build, design-build, and construction management and the unique risks they present.
- Outlines the process by which contracts are awarded and different types of price guarantees.

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**G. Edward Cassady III**  
**Executive Vice President, General Counsel & Secretary**  
**BE&K, Inc.**

Mr. Cassady is copresenting Monday's "Introduction to Contracting Methods" workshop (M1). He is Executive Vice President and General Counsel for BE&K, Inc., a construction and engineering company with several operating companies in the United States and overseas. Mr. Cassady practiced law for 15 years at Bradley Arant Rose & White and joined BE&K in 2000. In addition to his participation in various civic organizations, Mr. Cassady is a fellow in the American College of Construction Lawyers and serves on the Board of Trustees for the National Center for Construction Education and Research.

Mr. Cassady received his B.A. from Duke University in French. He received his J.D. from Vanderbilt Law School. Mr. Cassady subsequently did a fellowship at the Harvard Business School, where he received his A.M.P. degree. Immediately after law school he served as a Judicial Clerk to Judge James Hancock on the U.S. District Court for the Northern District of Alabama.

**Bruce J. Moldow**  
**Executive Vice President/Chief Legal Officer**  
**Moss & Associates**

Mr. Moldow is copresenting Monday's "Introduction to Contracting Methods" workshop (M1). He joined Moss & Associates in 2005 as Executive Vice President/Chief Legal Officer. He brings more than 20 years of industry experience to Moss. Prior to joining Moss, Mr. Moldow served as general counsel for ADT Security Services, Centex Construction Group, Centex Rooney Construction, and the Clark Construction Group.

Mr. Moldow earned a J.D. from Georgetown University Law Center and a B.S. in Accounting from the University of Maryland. He is a Certified Public Accountant and a member of the District of Columbia Bar and Maryland Bar Associates.

## ***Notes***

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# The Players And Their Roles

(What is a General Contractor?)



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## The Big Three

- Owner
- Contractor
  - General Contractor
  - Construction Manager
  - Program Manager
  - Multi Prime
- Designers
  - Architects
  - Engineers

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## The Next Tier

- Subcontractors
  - Nominated Subcontracts
- Suppliers
  - Nominated Suppliers

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## The Wild Card

- Owner's Other Contractors

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## Construction Definitions

**Contractor** – A gambler who never gets to shuffle, cut, or deal.

**Bid Opening** – A poker game in which the losing hand wins.

**Bid** – A wild guess carried out to two decimal places.

**Low Bidder** – A contractor who is wondering what he left out.

**Engineer's Estimate** – The cost of construction in heaven.

**Project Manager** – The conductor of an orchestra in which every musician is in a different union.

**Strike** – An effort to increase egg production by strangling the chicken.

**Completion Date** – The point at which liquidated damages begin.

**Liquidated Damages** – A penalty for failing to achieve the impossible.

**Auditor** – People who go in after the war is lost and bayonet the wounded.

**Lawyer** – People who go in after the auditors and strip the bodies.

– Author Unknown

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## Deciding Which Game to Play (Evolution of Project Delivery Methods)



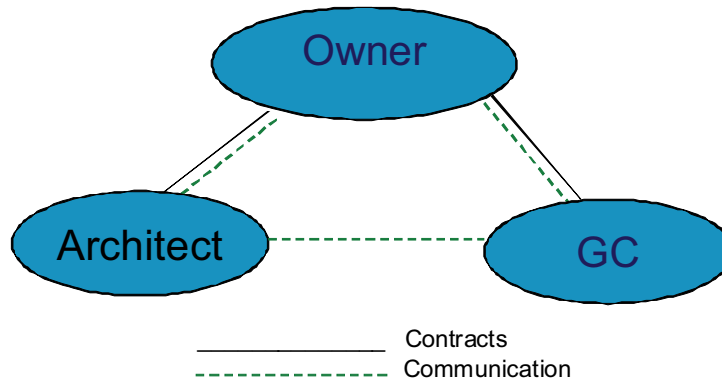
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## Delivery Systems

- Design-bid-build
- Construction management
  - CM as Advisor, CM as Agent
  - CM as Constructor
- Design-build
  - Design-build as Developer
- Others
  - Bridging
  - Multi Prime

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## In The Beginning. . . Design-Bid-Build



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## Design-Bid-Build

- Most common form of project delivery
  - Three phases, three prime players
  - Independent contracts between architect/owner and contractor/owner
  - Linear sequence of work
  - Common with public owners with requirements to select low bid

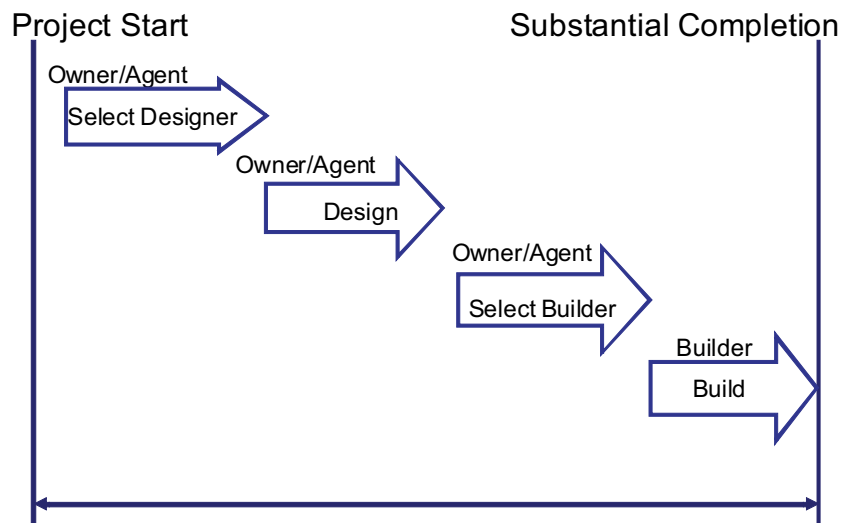
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# Design-Bid-Build

- Process
  - Owner hires architect to prepare construction documents
  - Construction documents are used for construction bidding
  - Contractor is selected and cost commitments are made
  - D-B-B proceeds in a linear or sequential fashion; design is completed before bidding, and bidding is completed before construction
  - Owner hires contractor to build the project

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# Design-Bid-Build



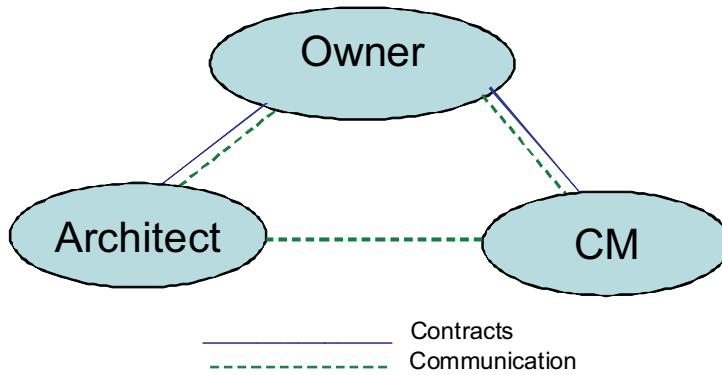
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# Design-Bid-Build

- Advantages
- Disadvantages

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## Construction Management



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## Construction Management

- Construction manager added to team to oversee the project
  - Used for public and private projects
  - Three or four players: owner, CM, architect, contractor (optional)

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## Construction Management

- CM as advisor
  - Acts as advisor to the owner
  - Architect and contractor maintain conventional roles

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## Construction Management

- CM as agent
  - Given authority of the owner
  - Allows owner to step back from project
  - Assumes financial authority

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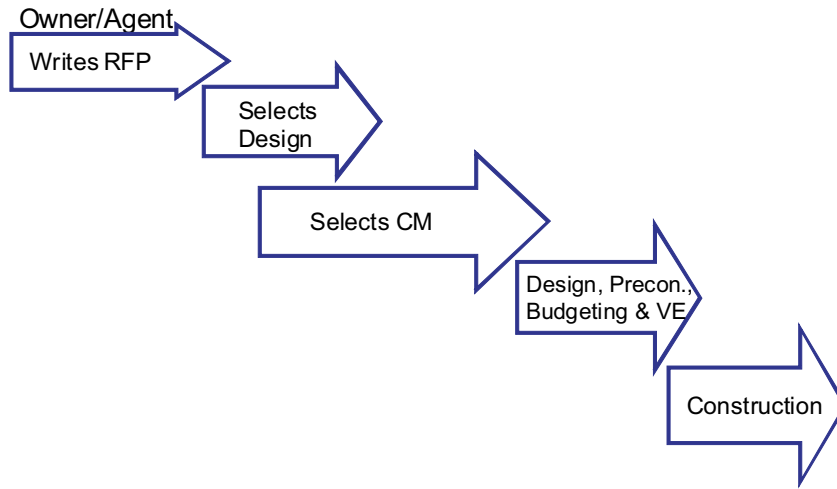
# Construction Management

- CM as constructor
  - Also known as CM at Risk
  - Acts as project coordinator and “general contractor”
  - Includes early cost commitment (GMP)
  - CM assumes all liability as the contractor

# Construction Management

- Process
  - CM is hired by owner
  - Architect is hired for construction documents
  - The CM oversees process (cost, schedule and constructability)
  - Construction documents are to bid or negotiate the work
  - CM is on board through construction

## Construction Management Timeline



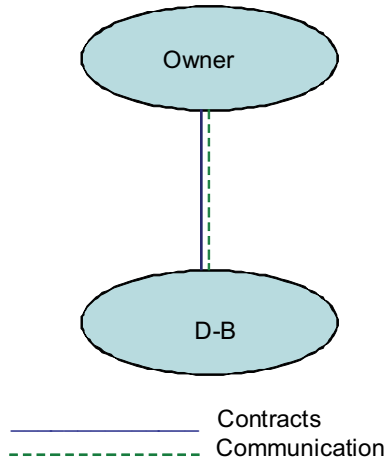
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## Construction Management

- Advantages
- Disadvantages

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# Design-Build



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# Design-Build

- Owner contracts with a single entity
  - Both design and construction services
  - Contractors more commonly head the team
  - Single point of responsibility
  - Not legal in all states
  - Two players

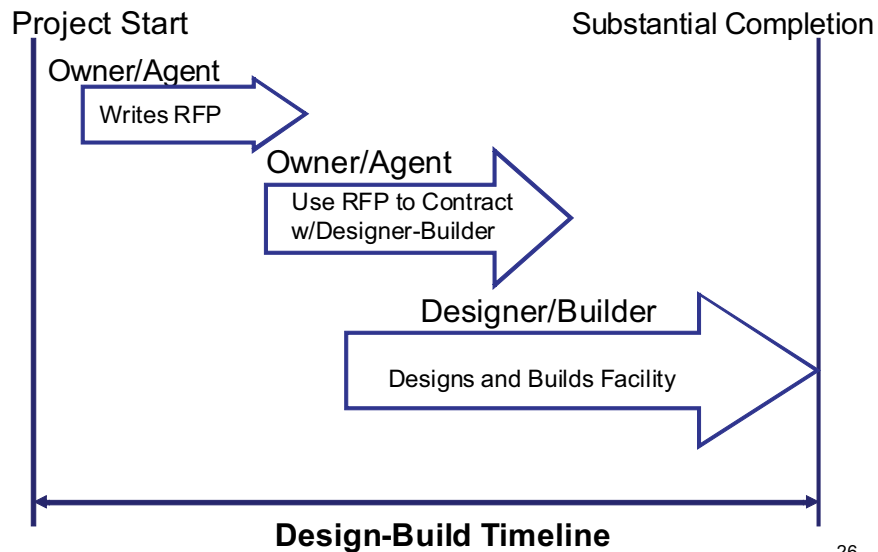
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# Design-Build

- Process
  - Design is completed by architect
  - Construction is completed by contractor
  - Proceeds in a non-linear fashion; construction can start while design is on-going
  - Early cost commitment is made

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# Design-Build



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## Comparison of Delivery Systems

- Specs and Drawings

D-B-B uses prescriptive specs and drawings

i.e., Prescriptive Specifications:

- Exterior Skin: ASTM C216 modular face brick, Type S mortar; ladder-type reinforcing at 8" vertically, ties @ 24" o.c.

D-B uses performance has specs and Drawings

i.e., Exterior Walls:

- Meet Installation Architectural Compatibility Standards
- Overall U-value: Minimum 0.12
- Overall STC not less than 43
- Withstand 35 psf pressure, max 1/360 deflection

CM uses both

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## Design-Build

- Advantages

- Disadvantages

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## Other Delivery Systems

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## Bridging

- Combination of design-bid-build and design-build
  - Owner hires architect for preliminary design
  - Same architect as owner's rep during construction
  - Design documents are used to choose design-builder
  - Design-builder completes construction documents

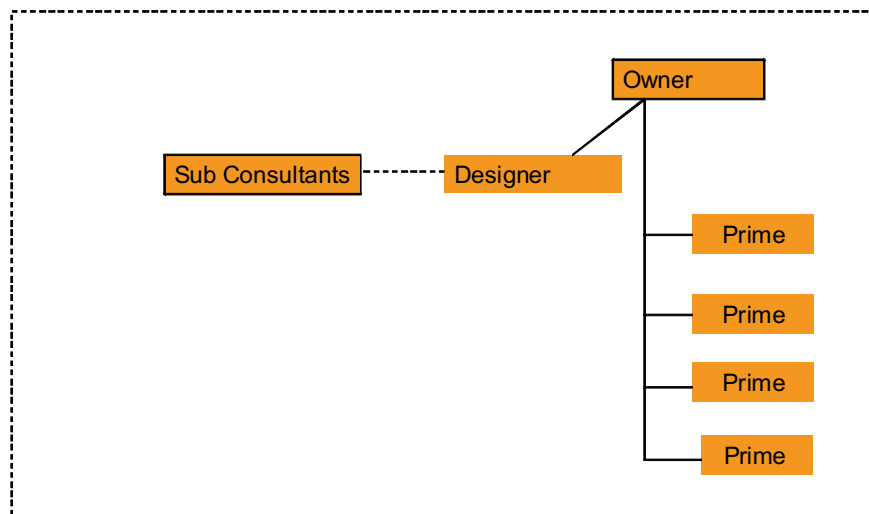
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# Bridging

- Advantages
- Disadvantages

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# Multiple-Prime



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## Multiple-Prime

- Follows Design-Bid-Build
- Many separate contracts
- Multiple prime players

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## Multiple-Prime

- Advantages
- Disadvantages

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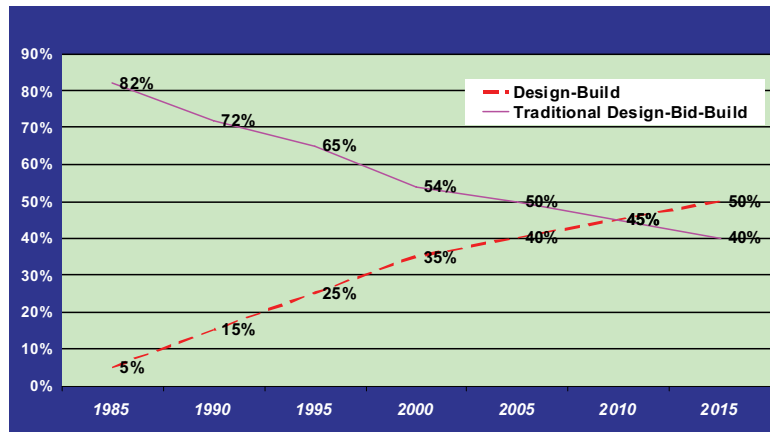
# Comparison of Delivery Systems

- A few studies and trends

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## Trends

Market Penetration of Major Project Delivery Systems

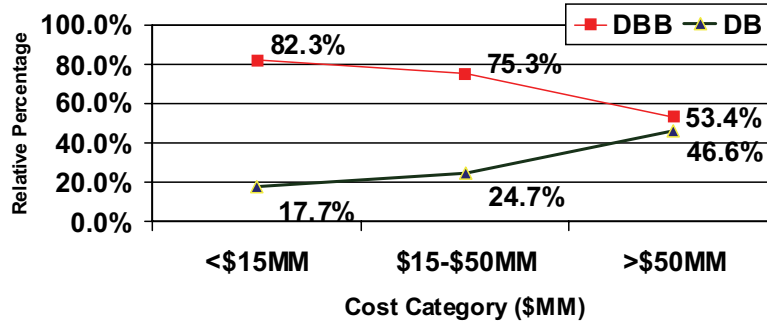


Projected Growth of Design-Build as Compared to Design-Bid-Build (DBIA 2005)

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## Percentage Share by Delivery System and Project Cost, Owners

Owner

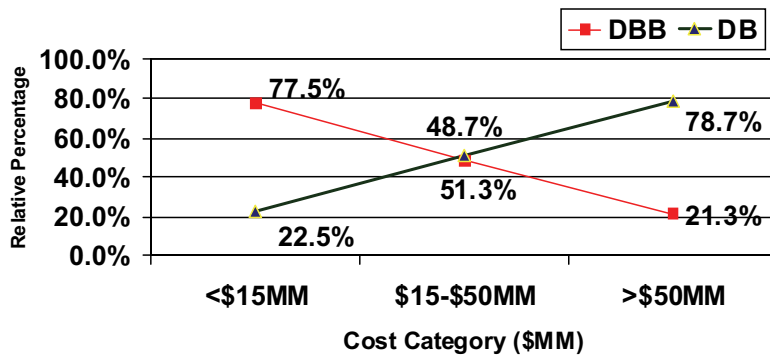


NIST Study

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## Percentage Share by Delivery System and Project Cost, Contractors

Contractor



NIST Study

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## Starting the Game (How is the Contractor Selected?)



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## Starting the Game (How is the Contractor Selected?)

- **Sole Source Negotiation**
  - Available from only one seller
  - Service differentiators
    - Quality
    - Safety
    - Capacity
    - Experience
      - project site,
      - process equipment, or
      - particular technology
  - Avoid transactional costs and time
  - Government contracting method
    - Job order contracts
    - Multiple award task order contract
  - Gather smaller tasks into a single order to attract interest

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## Competitive Negotiation

- Client issues Request for Proposal
  - Various Bidders respond
  - Client selects Bidders with whom to negotiate
  - Ongoing consecutive or simultaneous negotiations
  - Selection of least cost alternative
1. Tends toward selection of the party who makes a mistake
  2. More sensible in the context of a commodity item

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## Bid

- Qualifications
- Bidder selection
- Issuance of Request for Proposals
- Bidders respond
- Most responsive bidder selected for negotiations
  - Notification to remainder
- Contract negotiations proceed until conclusion or impasse

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# Choosing the Field for the Game



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# Nature of Project

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## New Construction

- Greenfield Site Advantages
  - Reduced risk for third-party property
  - Reduced risk for Owner's existing property
  - Reduced risk for existing equipment effectiveness
  - Reduced risk for existing structures

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## New Construction

- Greenfield Site Disadvantages
  - Increased risk for new technology
  - Increased risks for unproven site
  - Increased risks for logistics
    - Worker lodging
    - Deliveries, warehousing, utilities

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## New Construction and Renovation

- Renovation Advantages
  - Reusing existing technology
  - Using a proven site
  - Logistics are generally resolved
    - Site to include surrounding infrastructure

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## New Construction and Renovation

- Renovation Disadvantages
  - Third-party property risks
  - Owner's existing property risks
  - Status of and maintenance of existing equipment
  - Design concerns for existing structures

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## Shutdowns/Turnarounds

- Short duration (60 days or less) during which the existing income producing equipment is disabled for renovation
  - Schedule
  - Labor availability
  - Logistics
    - Materials
    - Equipment

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# Project Profile

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## Project Profile

- Industry
  - Variations in policy and practice across industries
  - Tendency toward claims
  - Value sensitivities
  - Common industry trends
  - Contractor history and experience

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## Project Profile

- Geography
  - Labor availability and demands
  - Climate
  - Soils
  - Regulatory framework
  - Logistics
  - Contractor experience

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## Project Profile

- Competition
  - Who is the likely competition
  - Who is actually competing
  - Competitor analysis
    - Existing workload
    - Strengths
    - Weaknesses

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# Project Profile

- Size considerations
  - Existing workload
  - Project demands
    - Estimating availability
    - Labor availability
    - Equipment availability
    - Materials availability
  - Contractor experience

# Project Profile

- Owner (public/private)
  - Public Owner
    - Regulatory restrictions
    - Experience
    - Least cost vs. best value
    - Contracting methods
      - Project delivery methods
      - Risk allocation
    - Payment history
      - Project funding source

## Project Profile

- Private Owner
  - Experience
  - Reputation
  - Financial capabilities
  - Program or project
  - Developer

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## Project Profile

- Financing structures
  - Self-financed by Owner
    - Owner credit evaluation
      - Parent guaranty (special purpose entities)
      - Letters of Credit
      - Retainer
      - Job cost and cash flow evaluations

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## Project Profile

- Public finance
  - Bond support
    - Public sale
    - Taxing authority
    - Industrial bonds
  - Limitations on funding
  - Political elements

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## Project Profile

- Bank or other intermediary finance
  - Creditworthiness of owner finance
  - Limitations on funding
  - Draw structures
  - Cash flow evaluations
  - Function of bank's engineer

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## Project Profile

- Contractor financed
  - Equity stake for contractor (intentional)
  - Contractor guaranty to promote financing (intentional)
  - Contractor completion to promote lien value (unintentional)

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## Playing the Game



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## Playing the Game

What are the various delivery methods?  
What are the practical differences? What are the advantages and disadvantages of each from perspective of Owner and Contractor? How are typical risk elements dealt with in each?

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## Five Stages of a Project

Stage One

Excitement – Euphoria

Stage Two

Disenchantment

Stage Three

Search for the Guilty

Stage Four

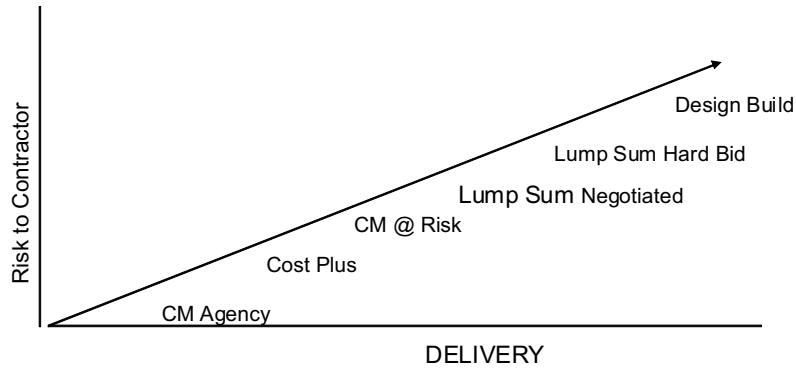
Punishment of the Innocent

Stage Five

Distinction for the Uninvolved

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## Delivery System Risk



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## How Does Owner Select Method?

- Owner Drivers
  - Contractor sophistication
  - Staffing capabilities
  - Market conditions
  - Appetite for Risk

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## CM Agency/Program Management

Contractor takes the risk for:

- Very little (usually negligence or higher)

Steps into shoes of owner and acts as owner's agent

Advantages to Owner

- Extension of staff
- Buys expertise
- Flexibility (buy what you need)
- Low fee
- Better understanding of cost/schedule

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## CM Agency/Program Management

Disadvantages

- Loss of institutional knowledge
- Add layer of fee and bureaucracy
- No guarantees

Contractor's View

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## Cost Plus Construction

Contractor takes the risk for

- Schedule (maybe)
- Otherwise very little

Advantages to Owner

- Use when very difficult to reasonably estimate cost (renovation)
- Fee can be limited and it costs what it costs

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## Cost Plus Construction

Disadvantages

- Blank check
- Little or no control
- Little or no incentive for contract to minimize costs

Contractor's View

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## CM @ Risk

Contractor takes the risk for:

- Labor rates
- Labor productivity
- Materials costs/Escalation
- Equipment costs/Escalation
- Cost of money
- Schedule
- Advantages to Owner
  - Cost and schedule guarantees
  - Opportunity for savings
  - Professional front end service
  - Competitive pricing
  - Opportunity to control input to VE/schedule/budgets

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## CM @ Risk

- Disadvantages
  - CM not owner's agent truly
  - May be prohibited on public jobs

Contractor's view

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# Lump Sum

Contractor takes the risk for:

- Labor rates
- Labor productivity
- Materials costs/Escalation
- Equipment costs/Escalation
- Cost of money
- Schedule

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# Lump Sum

Advantages to Owner

- Fixed price for a defined scope and schedule
- Premium cost charged for the risks
- Scope definition is essential
  - Vast differences in level of scope definition in different industries

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## Lump Sum

- Disadvantages
  - Premium costs for the risks
  - Contractor viability
    - Bonds, Letters of Credit, Parent Guaranty
  - Potentially adversarial relationship
  - Contractual risk allocation elements

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## Reimbursable

- Contractor may take the risk for:
  - Labor availability
  - Labor management
  - Materials purchasing functions
  - Equipment purchasing functions
  - Schedule

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## Reimbursable

- Advantages to Owner
  - Minimal fee to contractor because of minimal risk for contractor
  - Freedom to redefine scope without spectre of change order and related transactional costs or delays
  - Control over labor availability through labor rate established

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## Reimbursable

- Disadvantages
  - No defined cost for the project
    - Limitation on project financing

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## Design Build or EPC or Turnkey

- Contractor takes the risk for
  - Design and, in some cases, performance
  - Depending on contracting method, all items listed in connection with Lump Sum or Reimbursable method
- Advantage
  - Single point of responsibility (Prime Contractor)

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## Hybrid Delivery Methods

- Various means of allocating the risks
  - Contractor takes risks it best controls
    - Labor availability
    - Labor productivity
    - Procurement efficiency
    - Construction management efforts
  - Owner takes risks it best controls
    - Site
    - Project timing (labor market etc.)

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## Typical Risk Elements to Consider Under Each Delivery Method

- Owner (financial stability, reputation, etc.)
- Subcontractors (experience, backlog, financial stability, reputation, etc.)
- Suppliers (experience, stability, reputation, quality, etc.)
- Third-Party Risk (property damage, consequential losses, etc.)
- Market (labor availability, economy, etc.)
- Performance Risk (schedule, quality, productivity, etc.)
- Design (completeness of documents, complexity, etc.)
- Environmental (existing site conditions, disposal, etc.)
- Political (code enforcement, budget issues, etc.)
- Laws/Regulatory (change in laws, OSHA, etc.)
- Force Majeure (weather, terrorism, etc.)

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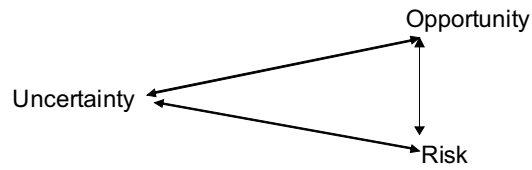
## Winning the Game (How do you deal with the risks you have identified?)



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## Winning the Game (How do you deal with the risks you have identified?)

Uncertainty can result in risk; but it can also result in an opportunity. The key to risk management is to move uncertainty away from risk and towards opportunity.

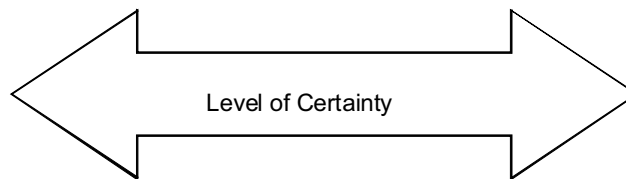


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## Winning the Game

NO INFORMATION  
UNKNOWN TERRITORY

COMPLETE INFORMATION  
KNOWN TERRITORY

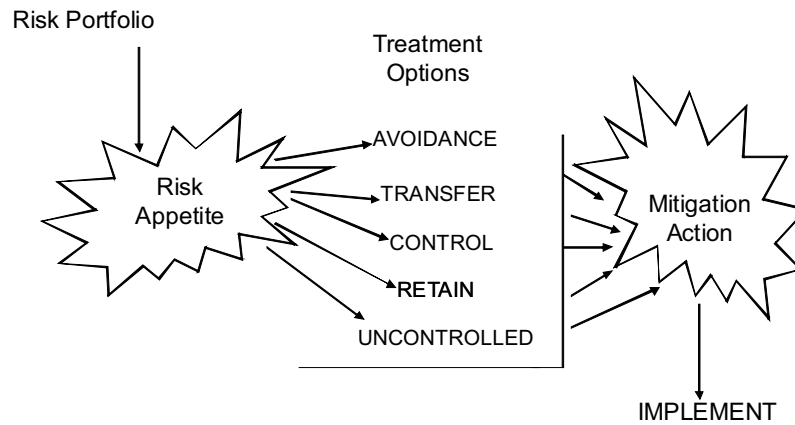


TOTAL  
UNCERTAINTY

TOTAL  
CERTAINTY

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## Winning the Game



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## Winning the Game

- **Risk avoidance**
- Avoid bad projects
  - Banker margins/Venture capital risks
  - “The best project is sometimes the project never taken”
  - Falling in love with a project
    - High profile
      - Client
      - Predecessor contractor
    - New technology
    - Strategic

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## Winning the Game

- Leave project risks with the Owner
  - Sales discussions
  - Contract negotiations
  - Change control
  - Close out
    - Punch list
    - Warranty
    - Indemnity

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## Winning the Game

- **Risk transfer**
- Insurance products
  - Completion risks
  - Liquidated damages coverage
  - Project efficacy
  - Subcontractor default
  - Construction defect coverage litigation

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## Winning the Game

- Surety products
  - Subcontractor defaults

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## Winning the Game

- Transfers to suppliers
  - Equipment efficacy
  - Sophistication of today's product market
    - Warranty limitations

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## Winning the Game

- Transfers to subcontractors
  - Subcontractor sophistication
  - Subcontractor insurance
  - Subcontractor viability
    - Cash control options
    - Bonding
    - Subcontractor default insurance

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## Winning the Game

- **Retain**
- Identify
  - Risk identification
    - Mitigation or control of the risks
    - Charge for the risks
    - Share the risks through limits

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## Winning the Game

- Management of risk
  - Performance methods
    - Equipment costs—early buyout
    - Subcontractor costs—early buyout
  - Escalation risks
    - Labor costs—contract methods
    - Subcontractor lump sum
  - Safety
    - Additional safety management

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## Winning the Game

- Reduce performance strains
- Overtime
- Night work
- Congestion

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## Winning the Game

- Manage experienced and trained craft professionals
  - Qualified craft professionals
  - Adequately tooled for the job
  - Well-trained managers
  - Safety conscious

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## Questions

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