Project Delivery Systems

- What is a project delivery system?*
  - AGC: “the comprehensive process of assigning the contractual responsibilities for designing and constructing a project”
  - CSI: “a mixture of contractual arrangements and processes that optimize the primary factors [of extent, time, cost and quality]

*“the terms “method” and “system” are interchangeable
Project Delivery Systems

- Industry-wide standards for PDS do not exist
- PDS are recognized by their defining characteristics
  1. Contractual responsibilities
  2. Selection criteria for the constructor
     - Lowest cost
     - Qualifications
     - A combination of both ("best value")
Project Delivery Systems

- Contracts define the rights, duties, and responsibilities of the parties (allocation of risk)
- PDS defines the contract(s) and the contract(s) must define the PDS
- The essential relationship between the PDS and the contracts must be complimentary and accurate
Project Delivery Systems

- Three fundamental PDS:
  - Design-bid-build (traditional)
  - Design-Build
  - Construction Management at-Risk

- Each system has typical/customary roles and procedures but these do not necessarily define the PDS

- Numerous variations & hybrids

- Varying terminology
Design-Bid-Build

◆ Defining characteristics:

- Design and construction are separate contracts
  ◆ Owner contracts for design with A/E.
  ◆ Owner contracts for construction with contractor.

- The contract award for the work is based on lowest cost
Construction Management at-Risk

Defining characteristics:
- Design and construction are separate contracts
- Constructor is chosen by criteria other than lowest total construction cost
Design-Build

- Defined by one characteristic:
  - Design and construction are combined in a single contract
Design-Bid-Build

- Typical characteristics:
  - Design is complete before bids are solicited
  - Constructor must complete the work as designed for the (bid) contract amount and in the time allowed
  - Designer has contractual responsibilities to the Owner during construction
Construction Management at-Risk

- Typical characteristics:
  - Constructor contracts directly with Owner (design is separate)
  - Constructor is contractually engaged before construction begins
  - Constructor provides preconstruction services, i.e.:
    - Cost estimates
    - Constructability reviews
    - Schedule review
    - Pre-qualification of trade contractors
Typical characteristics (continued)

- Constructor contracts with trade/specialty contractors
- Contract amount is determined or negotiated and subsequently fixed at a not-to-exceed cost (guaranteed maximum price or GMP)
- Constructor assumes performance risk
- Constructor assumes schedule risk
Design-Build

Typical characteristics:

- The Owner selects a design-builder by evaluating proposals under a combination of selection criteria, including:
  - Meeting the Owner’s program needs
  - Staying within the Owner’s budget
  - Staying within the Owner’s desired time-frame for completion
From Definition to Practice

◆ For each PDS
  – Responsibilities and duties of parties
  – Advantages of each PDS
  – Limitations for each PDS
Design-Bid-Build: Responsibilities

**Owner:**
- A program (defines the project)
- Finance ($)
- Representation during design and const.
- A project site

**Designer:**
- Design and design documents
- Contract administration services during construction
Design-Bid-Build: Responsibilities

- Constructor: All work and contract administration requirements

- The contracts create a “tripartite” relationship between Owner, Contractor, and Designer
Benefits of Design-Bid-Build

- The most familiar system of project delivery
- Provides the lowest initial market price
- Often required by law for publicly funded projects
- Project schedule is defined by the Owner in advance
Benefits of Design-Bid-Build

- **Owner:**
  - Can exercise control over the design
  - Designer provides representation during construction

- **Designer:**
  - Can better define the design in accordance with the program

- **Constructor:**
  - Defined budget and schedule
Limitations of Design-Bid-Build

- Linear timeline: design must be complete before bidding
- Bids may be over the project budget
- Competitive: bidders more inclined to take risks to obtain work.
  - Change orders and claims usually greater than other PDS.
CM at-Risk: Responsibilities

CM acts in a traditional role as general contractor who is at-risk for the work

Also typically provides:

- Preconstruction services including:
  - Periodic cost estimates
  - Constructability reviews
  - Pre-qualification of subcontractors
  - Identification of materials/products sources
Benefits of CM at-Risk

Potential benefits include:

- Potentially reduced costs to Owner from:
  - Comprehensive advanced design review
  - Materials/systems selections
  - Involvement during design by the party who will be at risk for construction performance and schedule
Limitations of CM at-Risk

- Designer and Owner have diminished control during the design process
- Design solutions that favor cost and constructability may prevail
- Unique and appropriate designs or design features may be eliminated
Design-Build: Responsibilities

- DB entity provides all design and construction.
- Design and construction are the duty of a single entity (who is party to the contract).
- Owner provides the project need and program.
Benefits of Design-Build

- Elimination of disputes the design team and the constructor
- The DB entity has sole responsibility for delivering the project in accordance with the Owner’s needs
Limitations of Design-Build

- The Owner must be able to clearly define the project requirements
- The Owner must have the knowledge and expertise to provide accurate and technically precise information
  - During design
  - During construction
  - Upon project close-out
Summary

- Any PDS should be selected and determined in accordance with the needs of project and the capabilities of the parties

- Project owners, designers, and constructors *must* recognize their own:
  - Capability, capacity, and experience
  - Strengths and limitations
Summary

- Selecting a PDS that benefits the goals of the project is usually appropriate.
- Selecting the correct PDS can benefit all parties who are at risk.
- Selecting (or participating) in a PDS for anticipated economic expedience or risk transference is ill-advised.