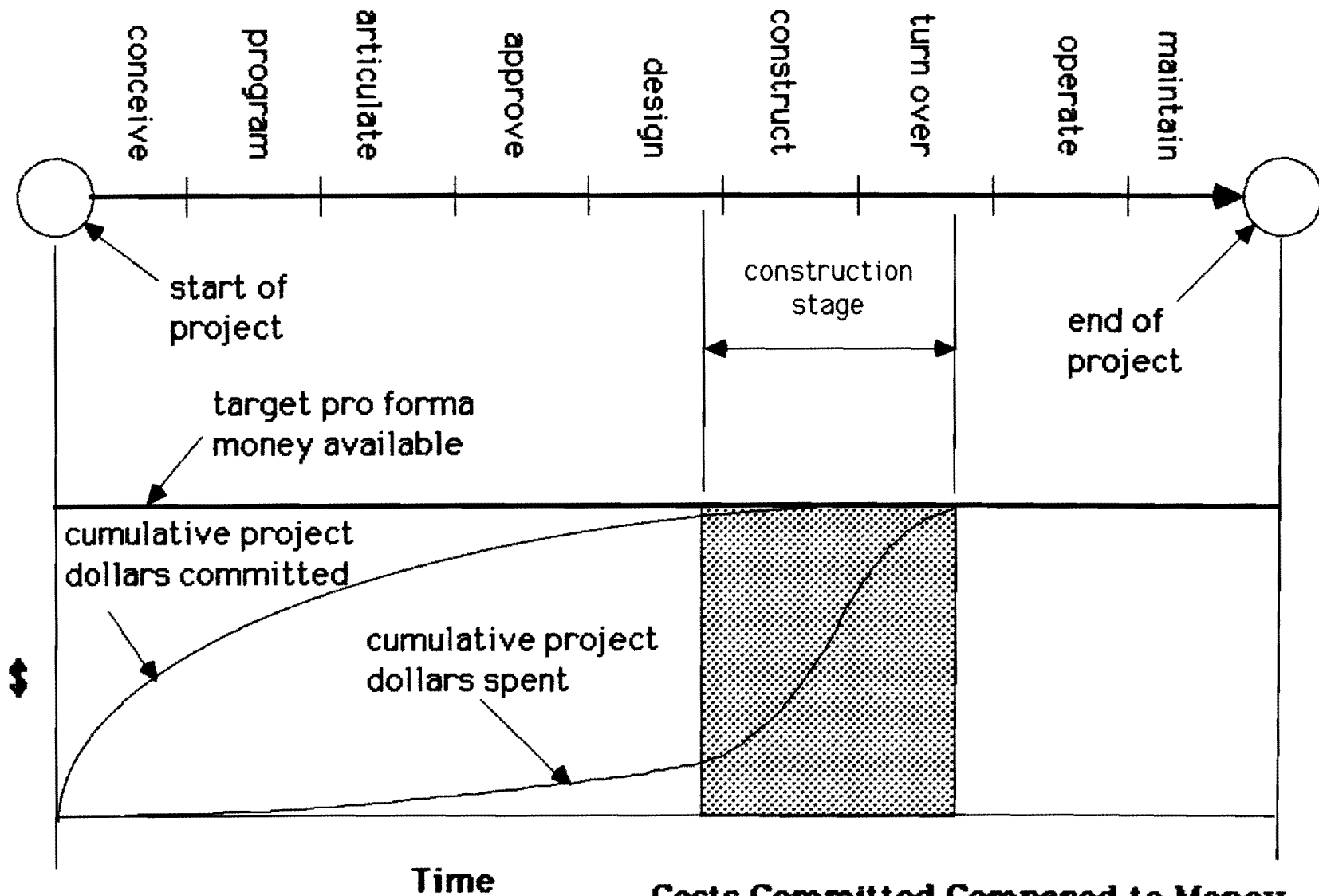


# Construction Project Delivery Systems

Ralph J. Stephenson PE

- A discussion of the shape of things to come in design & construction ●

Plumbing and Heating Industry of Detroit luncheon  
Wednesday, February 7, 1990 - CAM Expo '90 - Silverdome

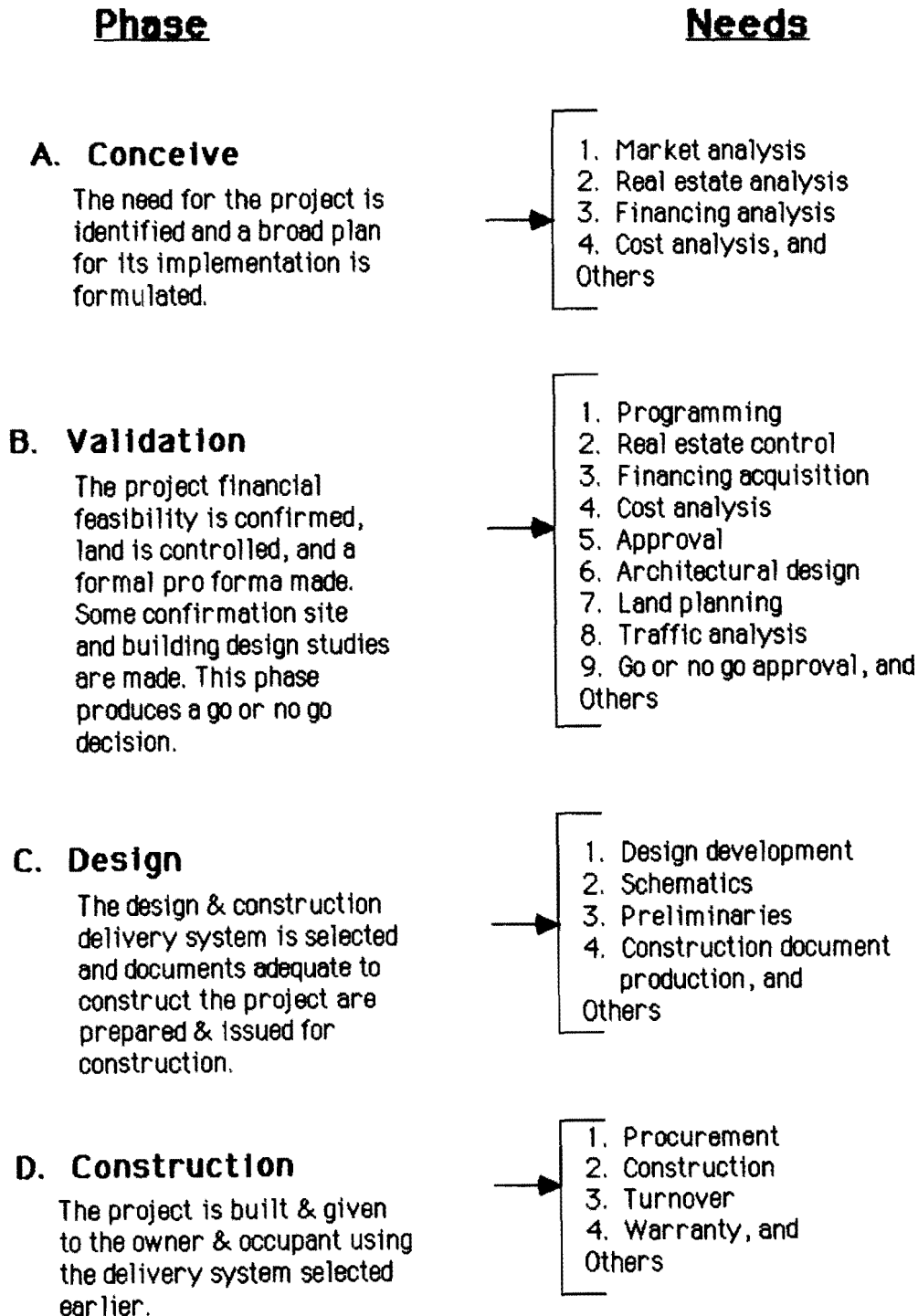


**Costs Committed Compared to Money Spent on Construction Projects**

Ralph J. Stephenson PE  
 Consulting Engineer

# 1. Project Delivery Work Phases

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## 2. Professional Service Contract Characteristics

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### A. Agreement premises

- 1. Totally negotiated - broad multivalued competition
- 2. Partially qualified - moderate multivalued competition
- 3. Totally qualified - narrow multivalued value competition

### B. Authority limits

- 1. As agent
- 2. As limited agent
- 3. As contractor

### C. Payment methods

- 1. Fixed total including payroll + overhead + profit + (expenses)
  - a. Expenses included
  - b. Expenses separate
- 2. (Payroll costs) x multiplier + fixed fee + expenses
  - a. Limit on
    - 1.) Payroll hours
    - 2.) Expenses
  - b. No limit on
    - 1.) Payroll hours
    - 2.) Expenses
- 3. (Payroll costs) x multiplier for payroll costs & overhead
  - a. Expenses included
  - b. Expenses separate
- 4. % of total construction cost
  - a. Expenses included
  - b. Expenses separate

### D. Scope of services

- 1. Single responsibility
  - a. All in house
  - b. In house & outside consultants
- 2. Split responsibility
  - a. In house, client & other prime consultants
  - b. In house & other prime consultants
  - c. In house & client

# 3. Construction Contract Characteristics

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Consulting Engineer

## A. Agreement premises

- 1. Totally negotiated - broad multivalued competition
- 2. Partially qualified - moderate multivalued competition
- 3. Totally qualified - narrow multivalued value competition

## B. Authority limits

- 1. As full agent
- 2. As limited agent
- 3. As contractor

## C. Payment methods

- 1. Fixed cost (hard money)
- 2. Time & material + fixed fee
  - a. Limit on
    - 1.) Time & material (gmp) with no shared savings
    - 2.) Time & material (gmp) with shared savings
  - b. No limit on time & material
- 3. Time & material + % fee
  - a. Limit on
    - 1.) Time & material (gmp) with no shared savings
    - 2.) Time & material (gmp) with shared savings
  - b. No limit on time & material

## D. Scope of services

- 1. Single responsibility - in house & subcontractors
  - a. All trades →
    - 1.) Provide management
    - 2.) Provide design
    - 3.) Provide construction labor
    - 4.) Provide construction materials
  - b. Limited trades →
    - 1.) Provide management
    - 2.) Provide design
    - 3.) Provide construction labor
    - 4.) Provide construction materials
- 2. Split responsibility - in house, subcontractors & other primes
  - a. All trades in contract →
    - 1.) Provide management
    - 2.) Provide design
    - 3.) Provide construction labor
    - 4.) Provide construction materials
  - b. Limited trades in contract →
    - 1.) Provide management
    - 2.) Provide design
    - 3.) Provide construction labor
    - 4.) Provide construction materials

## 4. Definitions - relating to project delivery systems

### **Agent**

A person or firm whose acts are asserted by the third party to bind the principal.

### **Agreement - totally negotiated**

An agreement made based on a full range of measuring values applied as desired by principal. The selection of a contractor is usually made with very little visible competition.

### **Agreement - partially qualified**

An agreement made based on a moderately broad range of measuring values used consistently by principal. The selection of a contractor is normally made with some or full visible competition.

### **Agreement - totally qualified**

An agreement made based on very narrow range of measuring values, i.e. price, but used consistently by principal. The selection of a contractor is normally made with full visible competition.

### **Authority**

The prerogatives, either vested or acquired over a long period of time, that allows an individual to carry out their responsibilities and duties. This includes the right to determine, adjudicate, or otherwise settle issues or disputes; the right to control, command, or determine.

### **Contractor**

The party, where there is a principal and a contractor, who agrees to the doing or not doing of some definite thing for a stipulated sum.

### **Guaranteed maximum price (gmp)**

The price for a specified scope of work to be provided by a contractor that contractually binds his performance to a specified guaranteed maximum price.

### **Hard Money**

A total price agreed to for the entire work, and to be paid in a mutually satisfactory schedule of payments.

### **Limited agent**

The party acting as an agent where he or she is authorized to do only what it is reasonable to believe the principal wants done. A contract can be used to define the amount of authority to be granted an agent.

### **Principal**

A person who authorizes another to act as his agent, or a person primarily liable for an obligation.

### **Pro Forma - in real estate development**

A financial model usually built early in a construction program to show by projecting income and expenses, how the money flow to and from the project will occur. It is often used to establish the capital amount to be allocated to a project based on simulated operating conditions. The term pro forma means according to form.

### **Program - as defining a step in the design process**

A narrative oriented statement of the needs and character of the proposed user operation, the requirements of the user and owner, the nature of the environment to be planned, designed and built, and the corresponding characteristics of the space that will satisfy these needs and requirements. Sometimes called the brief.

#### 4. Definitions - relating to project delivery systems

##### **Project Delivery System**

A method of assembling, grouping, organizing & managing project resources so as to best reach project goals & objectives.

##### **Responsibility**

The assignment, spoken or understood, that a person in an organization has as his part in maintaining the organization's health and vitality.

##### **Third party**

A party to a contract or agency agreement other than the principal or agent.

##### **Upset Price**

A guaranteed maximum price agreed to in a time and material contract. (See time and material contract.)