

Design-Build Discussion

FACERS Legislative Conference

November 30, 2005



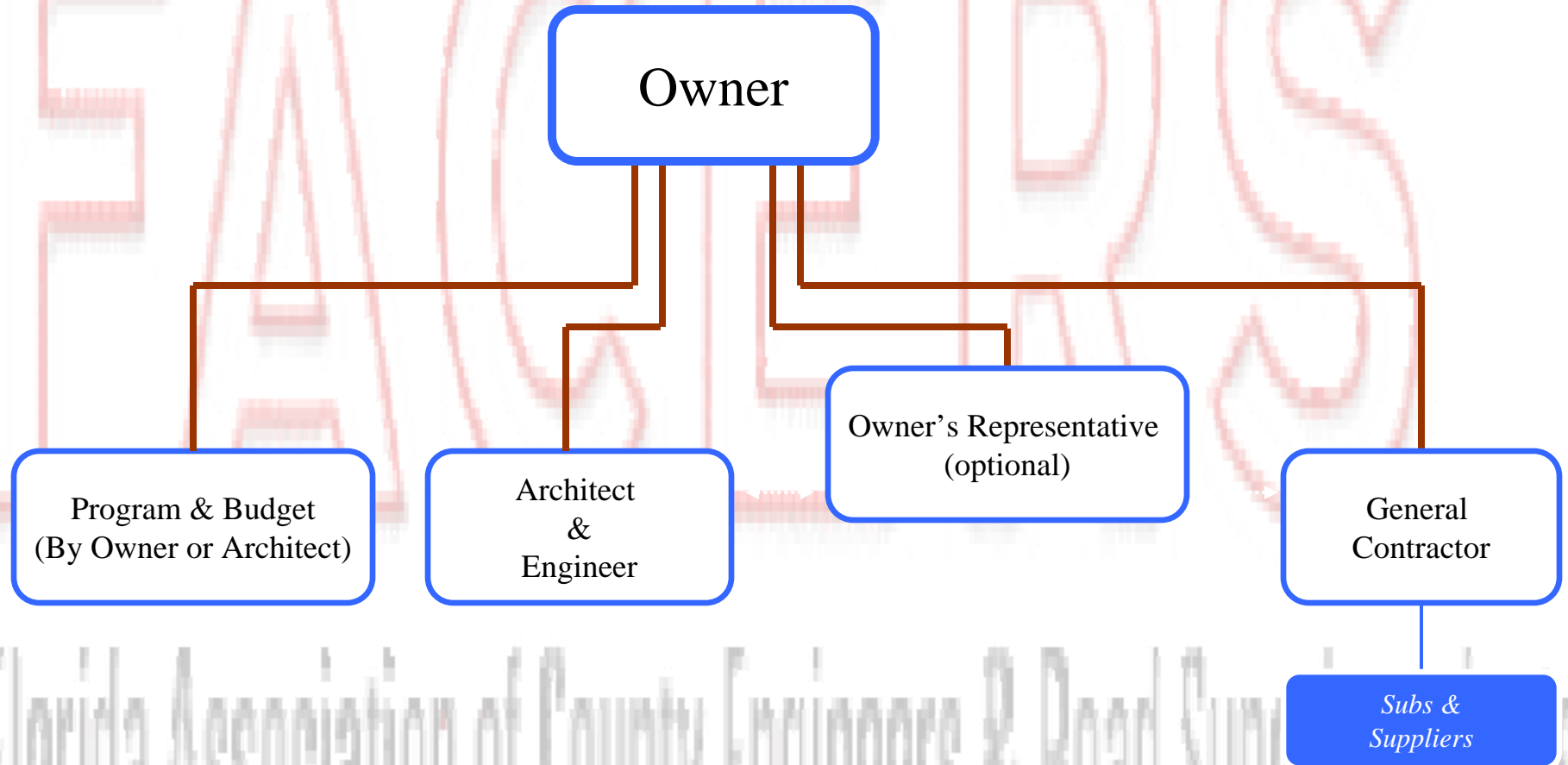
**Rex D. Huffman
Sr. Vice President
Gibbs & Register, Inc.**

*Based on 2003 Membership

Outline

- Definition
- Project delivery comparisons
- Advantages/disadvantages
- Growth trends
 - General
 - Highway/Bridge
 - Florida
- Selection process
- Design-Build issues
- Design-Build Institute of America (DBIA)
- Open discussion

Conventional Design-Bid-Construct Approach



Conventional Design-Bid-Construct Approach

What is the conventional approach to building a project?

- **The Owner retains an A/E to provide design and construction documents. The architect may also help develop program information prior to design. For public work, bids are received and the contract is awarded to the low qualified bidder. The architect administers the construction contract for the owner, alone or alongside an Owner's representative**

The conventional approach is most often used when:

- **The Owner is looking for low construction price based on competitive bidding and complete design criteria**
- **The schedule is not a high priority**
- **The Owner is willing and capable of managing the project**
- **A completely defined project scope is important in order to competitively bid the work and engage a general contractor**
- **The owner wants to separately and directly select architects and engineers**

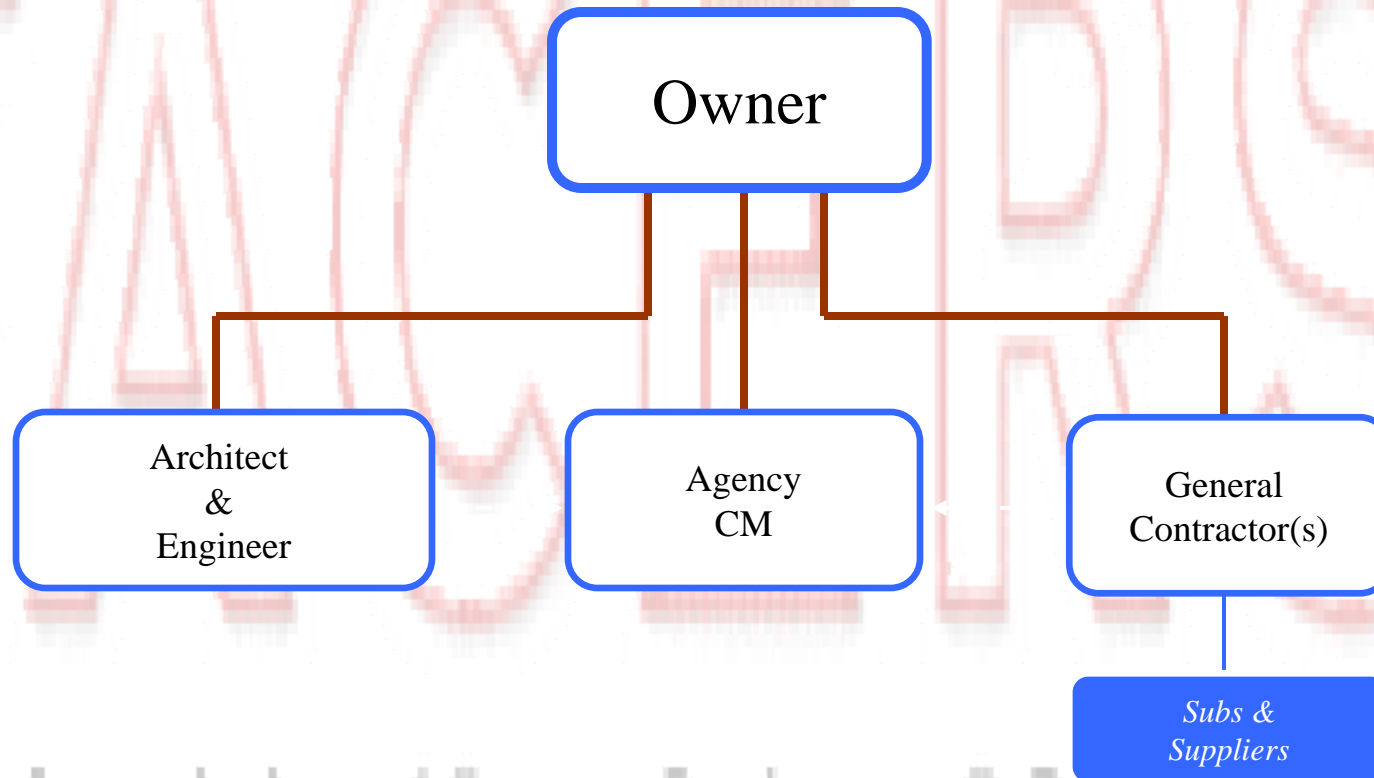
Conventional Advantages

- **Established and widely understood contractual relationships**
- **Cost control through a fixed (low bid) construction price**
- **Standard contractual forms**
- **Competitive bidding for construction (contractor pre-qualifications may be included)**
- **Owner can select architect, engineers and consultants**
- **Detailed construction criteria are set before bidding**
- **There are many contractors and architects familiar with this approach**

Conventional Disadvantages

- **Longest project duration . . . typically**
- **High investment before a fixed cost is determined**
- **Owner's time and risk due to owner involvement in project management**
- **Subcontractors (especially DBE's) can have limited opportunities to win**

Agency Construction Management



Agency Construction Management

What is Agency Construction Management?

- **As in the conventional approach, the Owner retains an architect and consultants to develop program information and to provide construction contract drawings. Early in design, the Owner then also retains a construction manager (CM). Selected based on qualifications, the CM has the following role:**
- **Design, cost and schedule advisor and construction inspector, similar to an owner's representative or agent. Hence, the term "agency" construction manager. A separate general contractor would be selected.**

Agency Construction Management is most often used when:

- **The Owner does not have the technical and management resources to manage the project.**
- **Management and balancing of cost, schedule and quality are important.**
- **Keeping the most project capital in the local economy is important.**

Agency Construction Management

Advantages

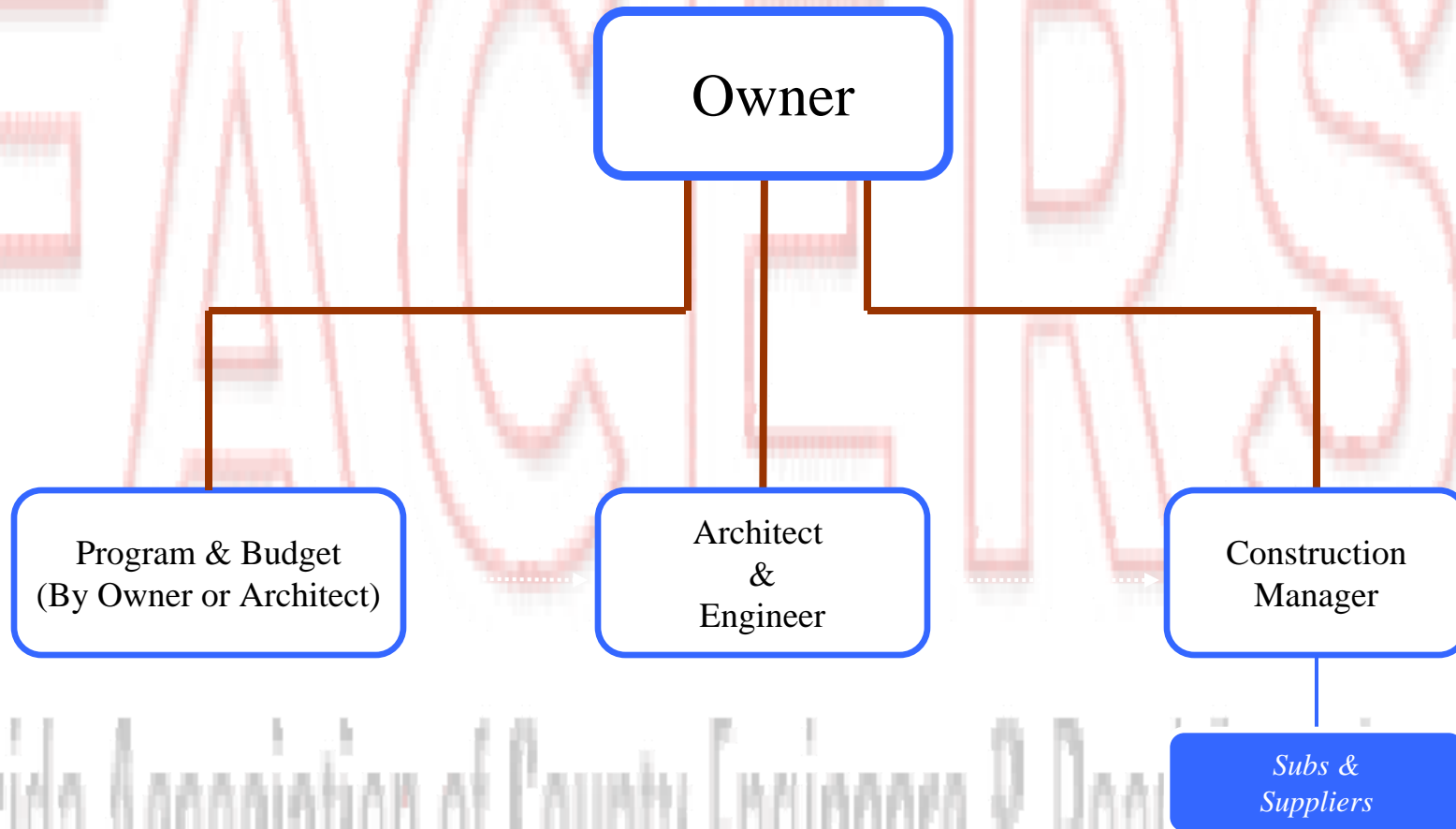
- **Qualified management and technical support for the Owner**
- **Competitive bidding for construction contractor - pre-qualifications may be included**
- **Cost control through a fixed (low bid) construction price**
- **Owner can select architect, engineers and consultants**
- **Detailed construction criteria are set before bidding**
- **Early construction input and value engineering can achieve cost savings**

Agency Construction Management

Disadvantages

- **High investment before a fixed cost is determined**
- **Agency CM does not guarantee project cost or schedule**
- **Owner's risk due to involvement in project management**
- **Other disadvantages of conventional approach can apply**

Construction Management at Risk



Construction Management at Risk

What is construction management at risk (as opposed to agency construction management)?

- **The Owner retains an A/E to provide design and construction documents. A Construction Manager is selected early in the design phase based upon qualifications. Once a GMP is agreed upon the CM is “At Risk” to deliver the project on time and for the GMP.**

Construction management is most often used when:

- **The owner does not have the technical and management resources to manage the project**
- **Rapid delivery is important**
- **Early transfer of financial risk is important**
- **Management and balancing of cost, schedule and quality are important**
- **Keeping the most project capital in the local economy is important**
- **Projects are large and require special technical and management expertise**

Construction Management at Risk

Advantages

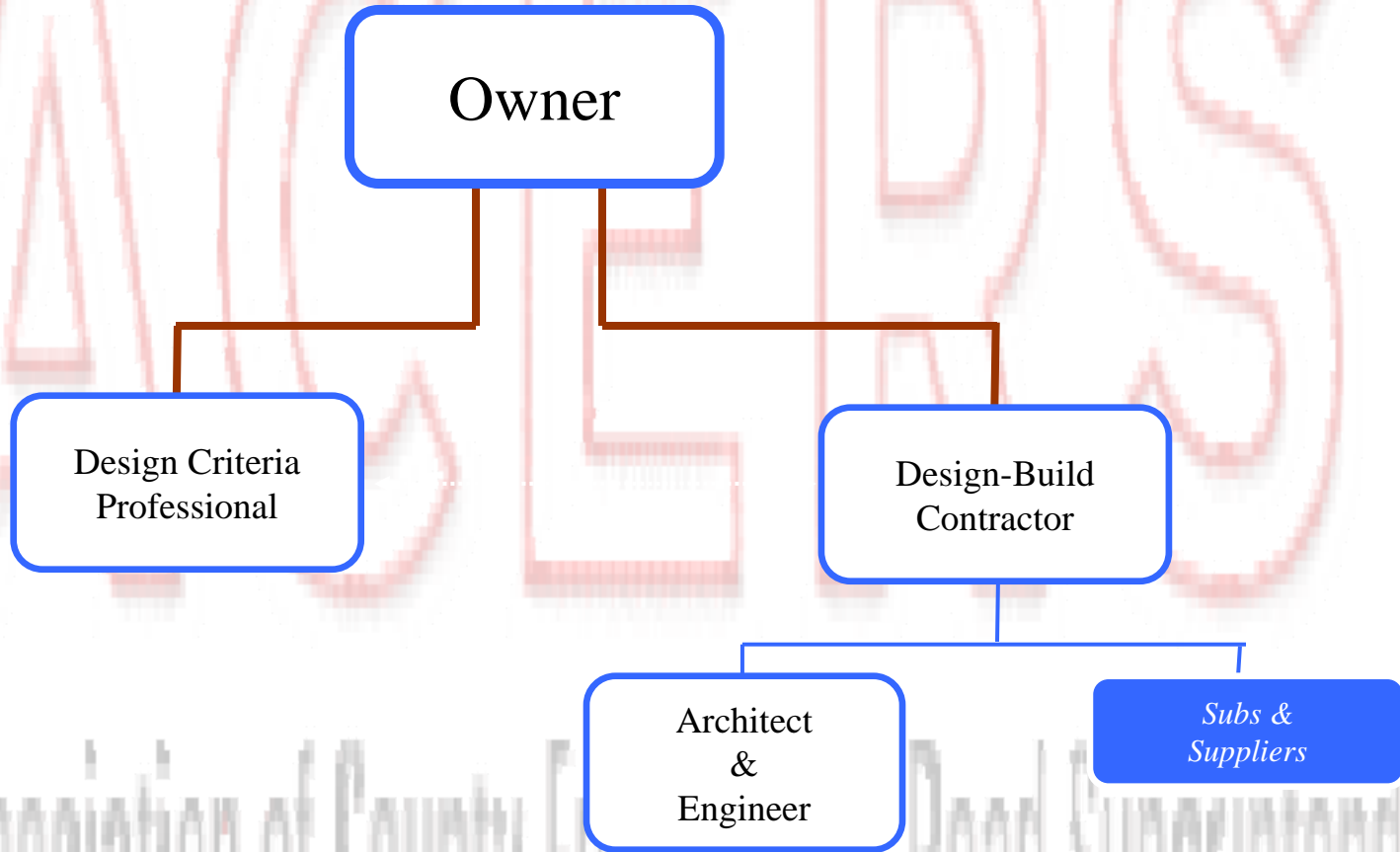
- **Qualified management and technical support**
- **Early guarantee of project costs**
- **Early selection of the overall project team - the architect and construction manager**
- **Early construction input and value engineering of design can achieve cost savings**
- **Early construction start and completion - well suited for fast-track delivery**
- **Opportunity for local subcontractors, trades, suppliers, while retaining competitive bidding of construction work**
- **Opportunity to keep project dollars in the local economy**

Construction Management at Risk

Disadvantages

- **Owner remains directly involved in project management and contract disputes**
- **Guaranteed price must include design and bidding contingencies**
- **Fewer qualified firms are experienced with this delivery method**

Design-Build



Design-Build

What is design-build?

- **After project criteria are established, the Owner contracts with a single entity responsible for the project's design and construction. Design-build proposals are submitted for consideration in response to RFP's. The competing design-builders may or may not be pre-qualified. Selection criteria may include qualifications, design scheme and price. The design-builder may be a contractor/architect team, a single source firm or a joint venture.**

Design-build is most often used when:

- **A single point of responsibility for the total project is important**
- **Rapid delivery is important**
- **Early transfer of project risk is important**
- **The Owner desires multiple approaches**

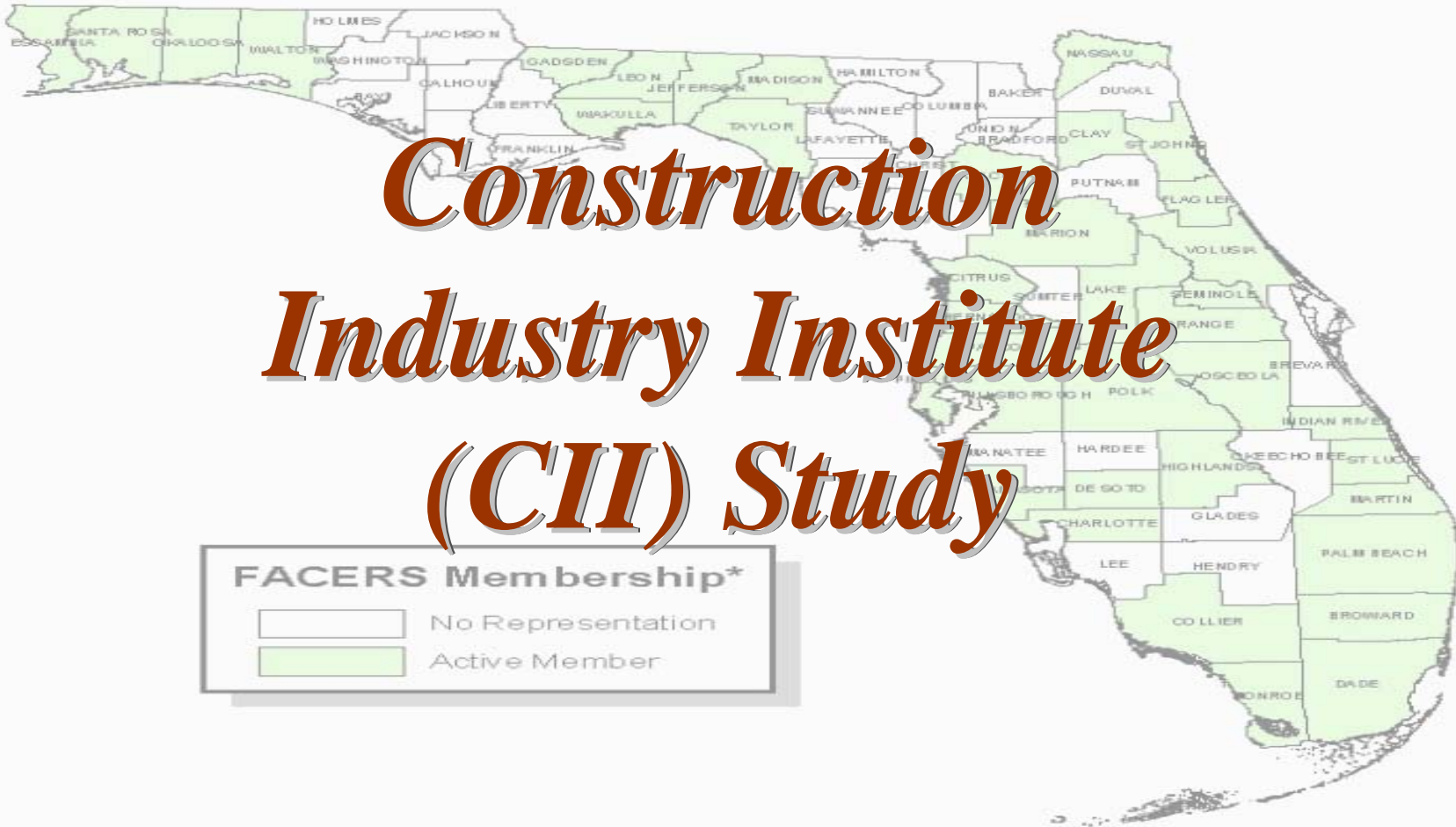
Design-Build Advantages

- **Single source responsible for complete project delivery**
- **Clear, streamlined communications with Owner**
- **Early guarantee of project costs**
- **Lends itself to fast-track delivery**
- **Early team selection - continuity**
- **Construction input into design**
- **Reduced claims to owner**
- **Eliminates change orders due to design error, omission or interpretation disputes**

Design-Build Disadvantages

- **Must select total project team as a package - rather than picking and choosing**
- **Traditional A/E “watchdog” role must be performed by Owner or Owner’s representative**
- **Critical design decisions must be finalized early in the project**
- **Design can be driven by special interests or capabilities of the design-builders**

Construction Industry Institute (CII) Study



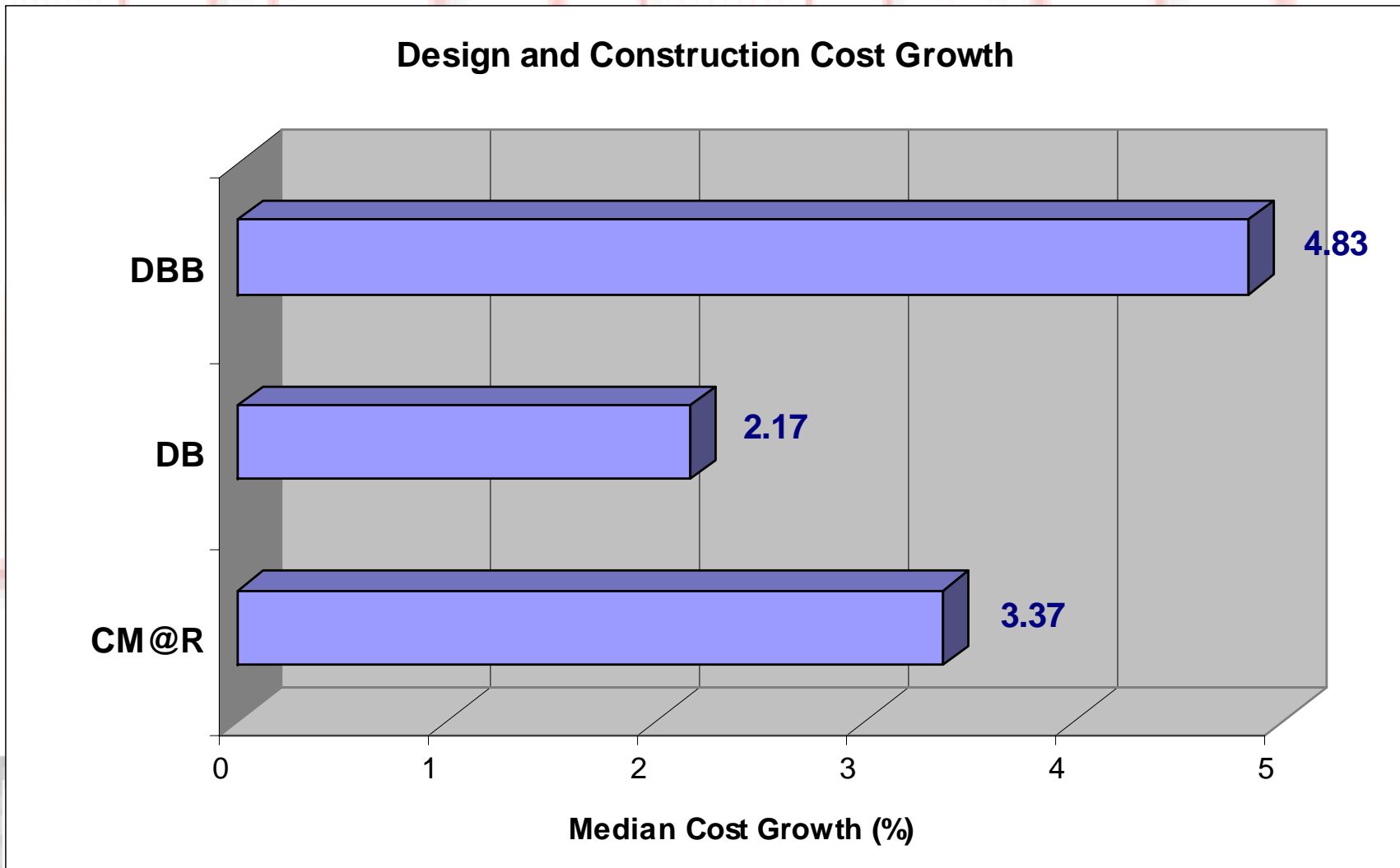
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CII Study

- **1997**
- **350 projects**
- **D-B-B vs CM@R vs D-B**
- **“Rock Solid” statistical analysis**

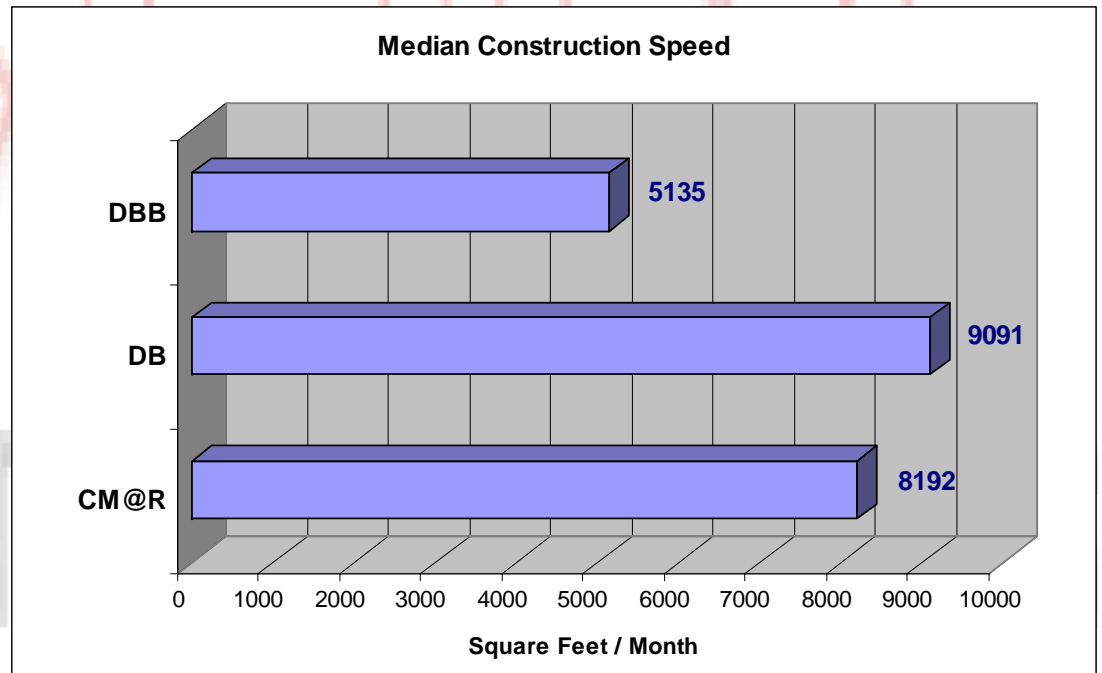
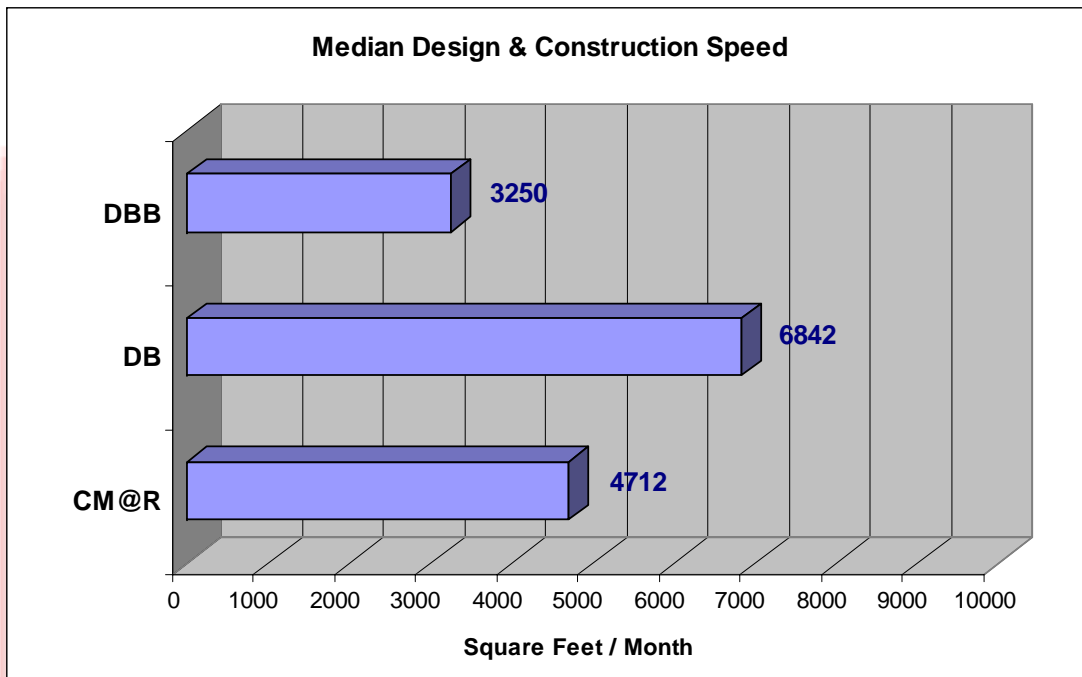
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Cost Growth



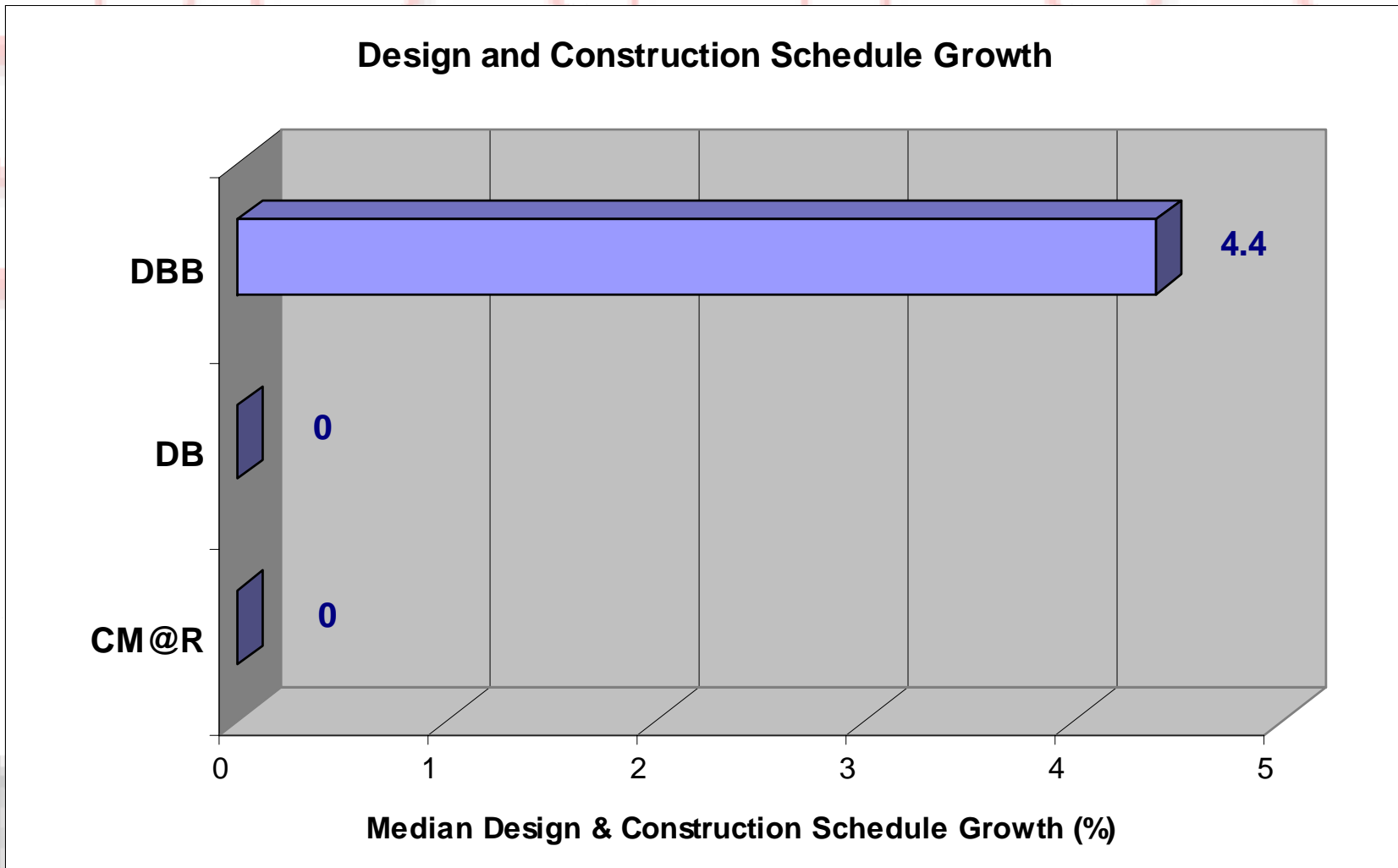
Source: CII

Project Speed



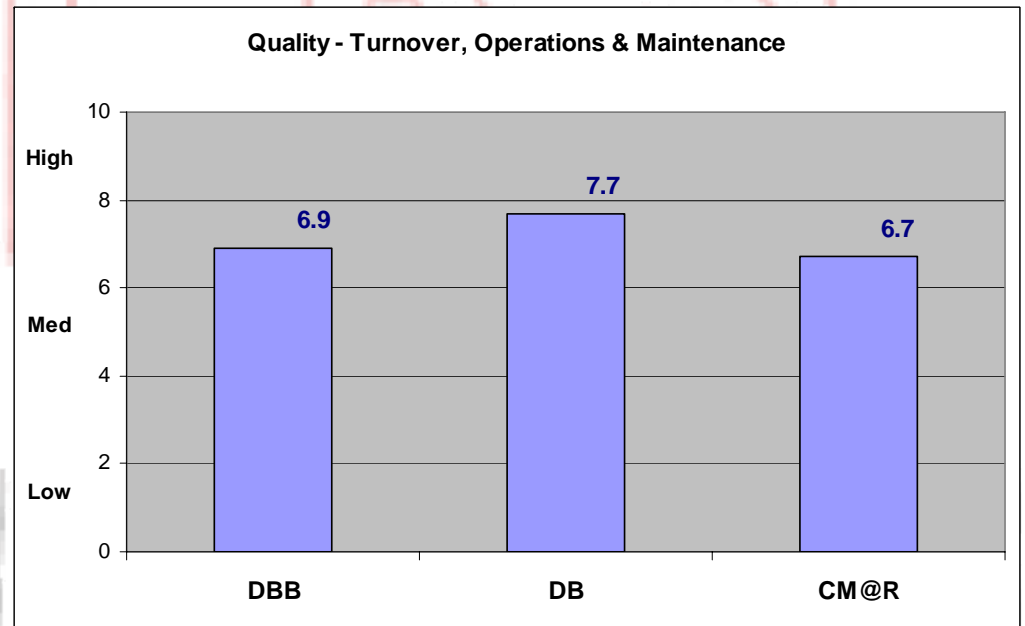
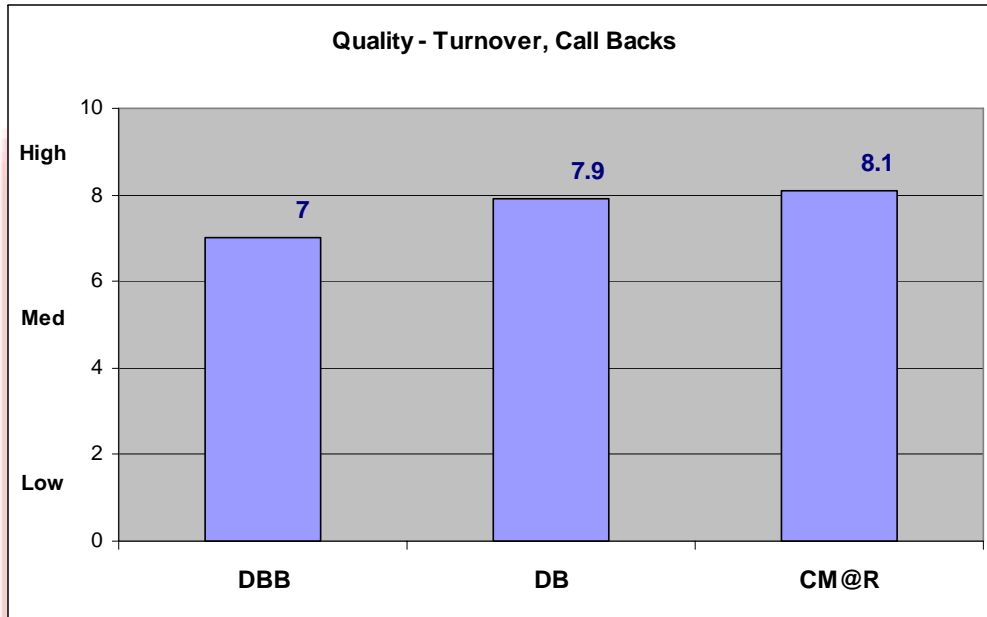
Source: CII

Schedule Growth



Source: CII

Quality

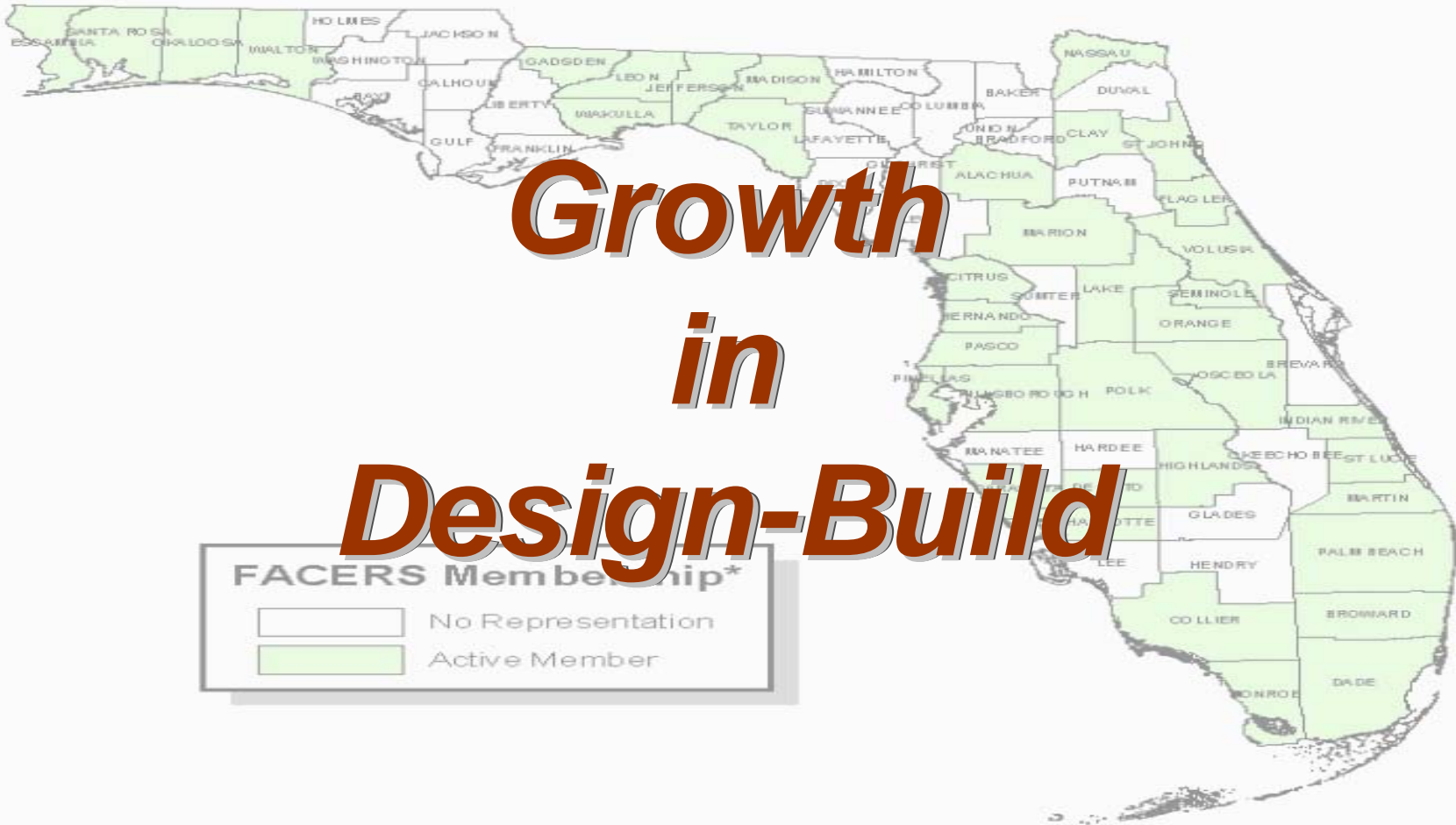


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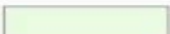
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 - **General**
 - **Highway/Bridge**
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Growth in Design-Build



FACERS Membership*

	No Representation
	Active Member

*Based on 2003 Membership

Milestones in Recent Design-Build History

- **1940's Naval Facilities Engineering Command uses the Capehart and Wherry Housing Programs that employ design-build**
- **1962 National Aeronautics and Space Administration (NASA) uses design-build**
- **1968 Department of Housing and Urban Development starts use of forms of design-build**
- **1969 Associated General Contractors (AGC) appoints "Turnkey Committee"**

Milestones in Recent Design-Build History (cont'd)

- **1972 Congress passes Qualifications-Based Selection (Brooks Act) for A/E Contracts**
- **1975 AGC publishes first edition of Standard Agreement between Owner and Design-Builder**
- **1978 The American Institute of Architects (AIA) adopts a policy permitting members to do design-build**
- **1984 Competition in Contracting Act places competitive negotiation on par with competitive sealed bidding**
- **1985 AIA publishes family of design-build documents**

Milestones in Recent Design-Build History *(cont'd)*

- **1986 Military Construction Authorization Act permits trial use of design-build; each branch is permitted to use design-build on three projects a year**
- **1990 General Services Administration issues Design Criteria Project Guide**
- **1991 AIA adopts policy acknowledging the use of design-build in the public sector**
- **1991 UF/FDOT Design-Build Program**
- **1993 Design-Build Institute of America established**

Milestones in Recent Design-Build History *(cont'd)*

- **1995 Engineers Joint Contract Documents Committee (EJCDC) issues design-build contracts**
- **1996 Legislation (Davis Amendment) enacted permitting use of two-phase selection for federal design-build projects**
- **1997 CII Study**
- **2002 FHWA D-B Rules**

The Early Transportation Projects

(prior to 1995)

- **Transportation Corridor Agency – CA**
- **FDOT Program**
- **Maine’s Bath – Woolwich Bridge**
- **LaCienga – CA**
- **FTA Demonstration Projects**
- **NYC DOT Bridges**

Design-Build: Florida's Experience

- **In 1987, Legislature authorized the DOT to experiment in a \$50 million “pilot” program.**
 - Intended to speed up process to save time
 - Visited GaDOT to obtain feedback
 - Selected variety of projects
 - University of Florida study findings

Design-Build: Florida's Experience

- **In 1995, Legislature further expanded the use of Design-Build Program.**
 - Major Bridges (over \$10 million)
 - Buildings
 - Rail Corridor Projects

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Design-Build: Florida's Experience

- **In 1996, this authority was further expanded to include all project types as a part of the “innovative” practices package.**
 - Annual monetary cap of \$120 million set by the statute for Innovative Contracting
 - The intent of this legislation was to address time and \$ overruns
 - Included D-B “Minor,” No Excuse Bonuses, A+B, Lane Rentals, etc.

Design-Build: Florida's Experience

- **Post 9/11, Florida's economy was floundering**
- **Governor Bush wanted to stimulate the economy by advancing \$667 million dollars of work**
 - With a condition, the work should hit the streets by July 2002
 - 30 – 35 projects statewide

Highway/Bridge Design-Build in Florida

- **FDOT**

- I-4 over St. Johns River
- Panasoffkee Creek Bridge Widening
- Ringling Causeway Bridge Replacement
- I-10 Escambia Bay Bridge Replacement
- Numerous Rest Areas

- **County**

- John Young Parkway – Orange County
- Port of Miami Roads/Bridges – Dade County
- I-4 Pedestrian Bridge – Seminole County

- **City**

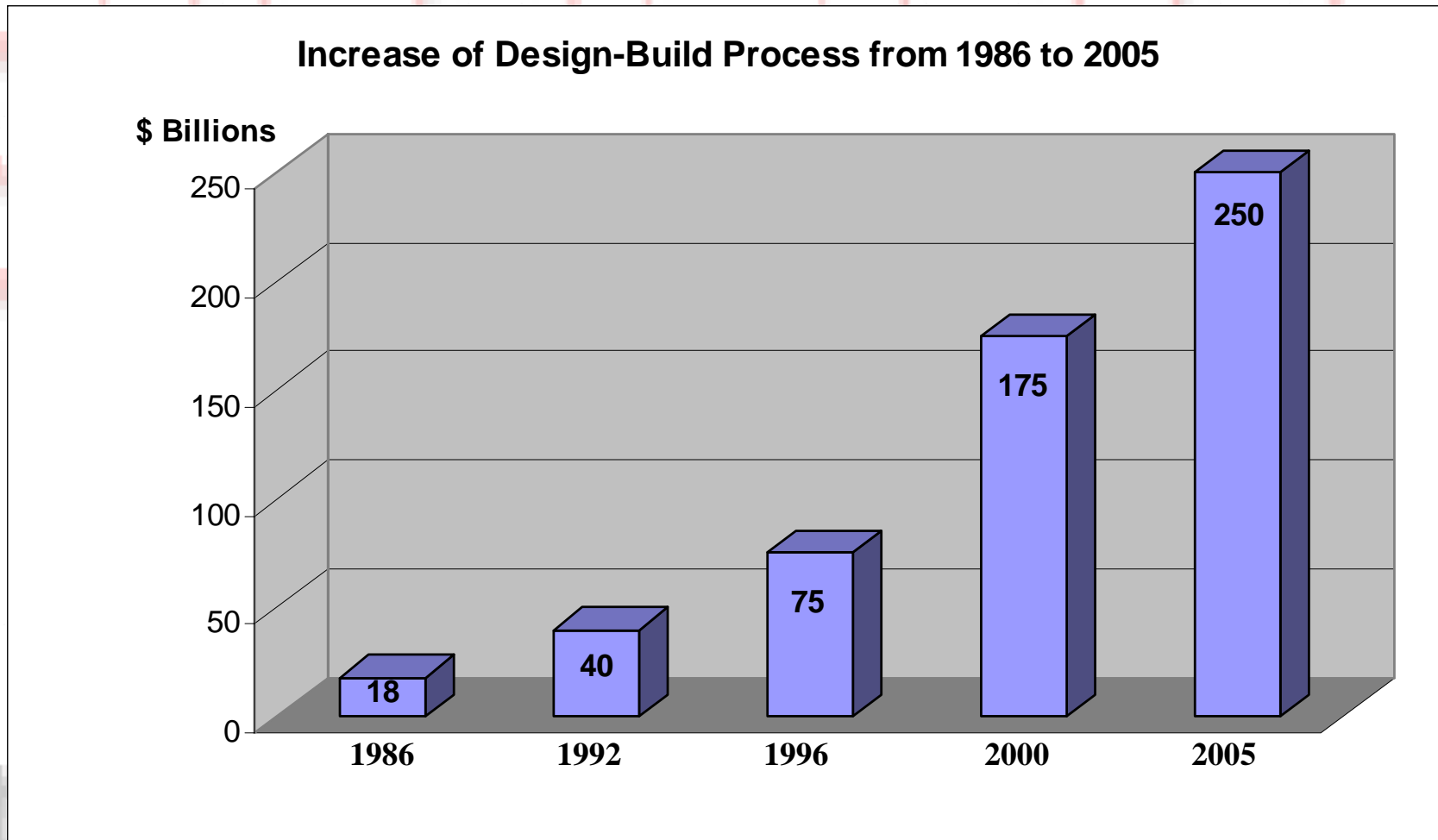
- Dale Earnhardt Bridge – City of Daytona Beach
- I-95/Dunlawton Avenue Interchange – City of Port Orange
- Southside/Merrill Road Bridge – Jacksonville Transportation Authority
- Vineland Road Bridge – City of Orlando
- Blue Print 2000 Projects – City of Tallahassee

Why the growth?

- **Market driven demand**
- **Quality improvement**
- **Cost effective solutions**
- **Reduced litigation**
- **Better risk management**
- **Faster delivery**

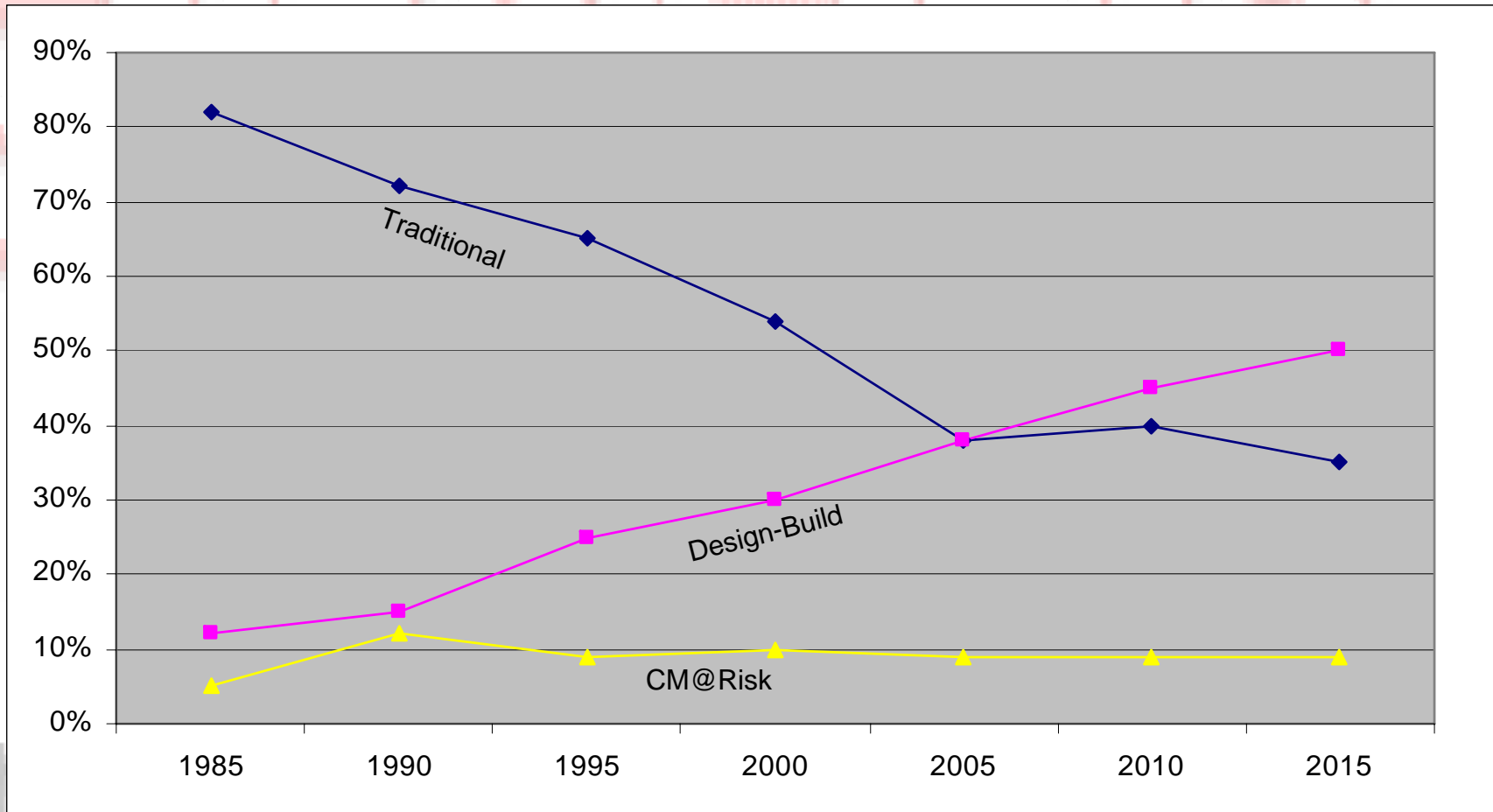
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Proof is in the Numbers



Source: Lawson Research International and E.N.R.

Market Penetration of Major Project Delivery Systems



Source: Design-Build Institute of America (DBIA)

Design-Build National Trends

- **Increasing use in public sector at all levels of government**
- **RFP's include less design specifics, more oriented toward achieving performance objectives**
- **Selections place increasing value on qualifications over price**
- **Large design-build projects becoming more complex**

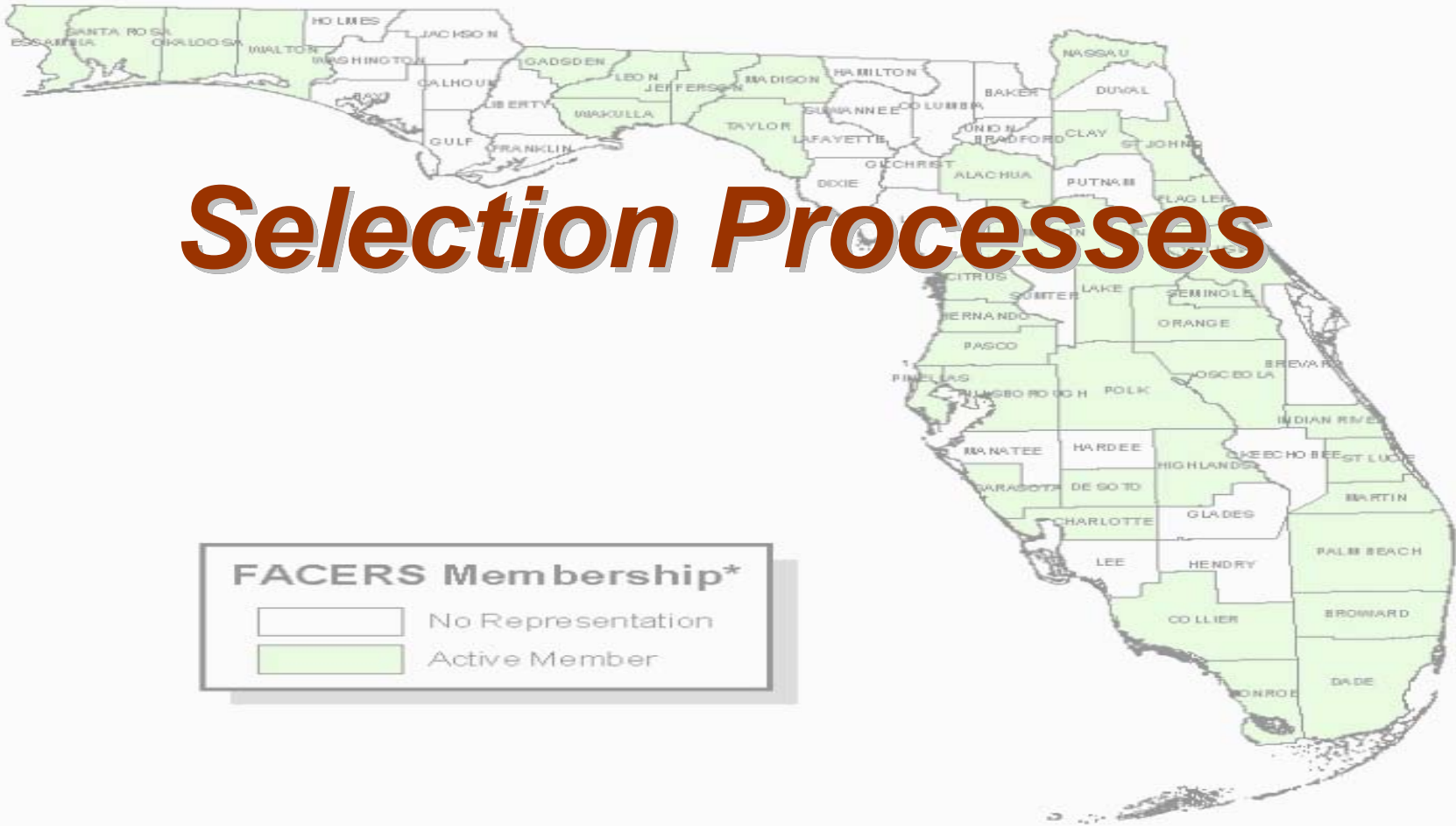
Design-Build National Trends

- **More industry sectors using design-build**
 - Transportation/public utilities
 - K-12 educational facilities
- **More owners see advantages of single contractual responsibility and a multidisciplinary team**
- **Part of more integrated solutions which include financing, operation, maintenance, and/or ownership**
- **More designers, particularly engineering firms, are placing themselves in an at-risk role by leading design-build teams**

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Selection Processes



*Based on 2003 Membership

Design-Build Selection Processes

Primary approaches:

- **Competitive Selection**
 - Technical and price based
- **Negotiated Selection**
 - Qualifications based

Competitive Selection

- **Owner's project definition/needs analysis**
- **Request for Qualifications - RFQ**
- **Shortlist most qualified for the project**
- **Owner issues project criteria in Request for Proposal - RFP**
- **Technical and price proposals**
- **Interviews (optional)**
- **Owner selects Best Value Proposal**

Best Value Selection Options

- **Meets criteria/low bid (equivalent design/low bid)**
- **Fixed price/best design**
- **Weighted criteria**
- **Adjusted low bid**

Weighted Criteria

Proposer	Qualitative Score (60 Max)	Price Proposal	Price Score (40 Max)	Total Score (100 Max)
Firm A	51	\$1,629,000	37	88
Firm B	53	\$1,546,000	39	92*
Firm C	44	\$1,510,000	40	84

**Award to Firm with the highest total score.*

Adjusted Low Bid

Proposer	Qualitative Score (100 Max)	Price Proposal	Adjusted Price
Firm A	85	\$1,000,000	\$11,764.71
Firm B	95	\$1,300,000	\$13,684.21
Firm C	50	\$800,000	\$16,000.00

Note: The adjustment to the bid is for selection only.

Negotiated Selection

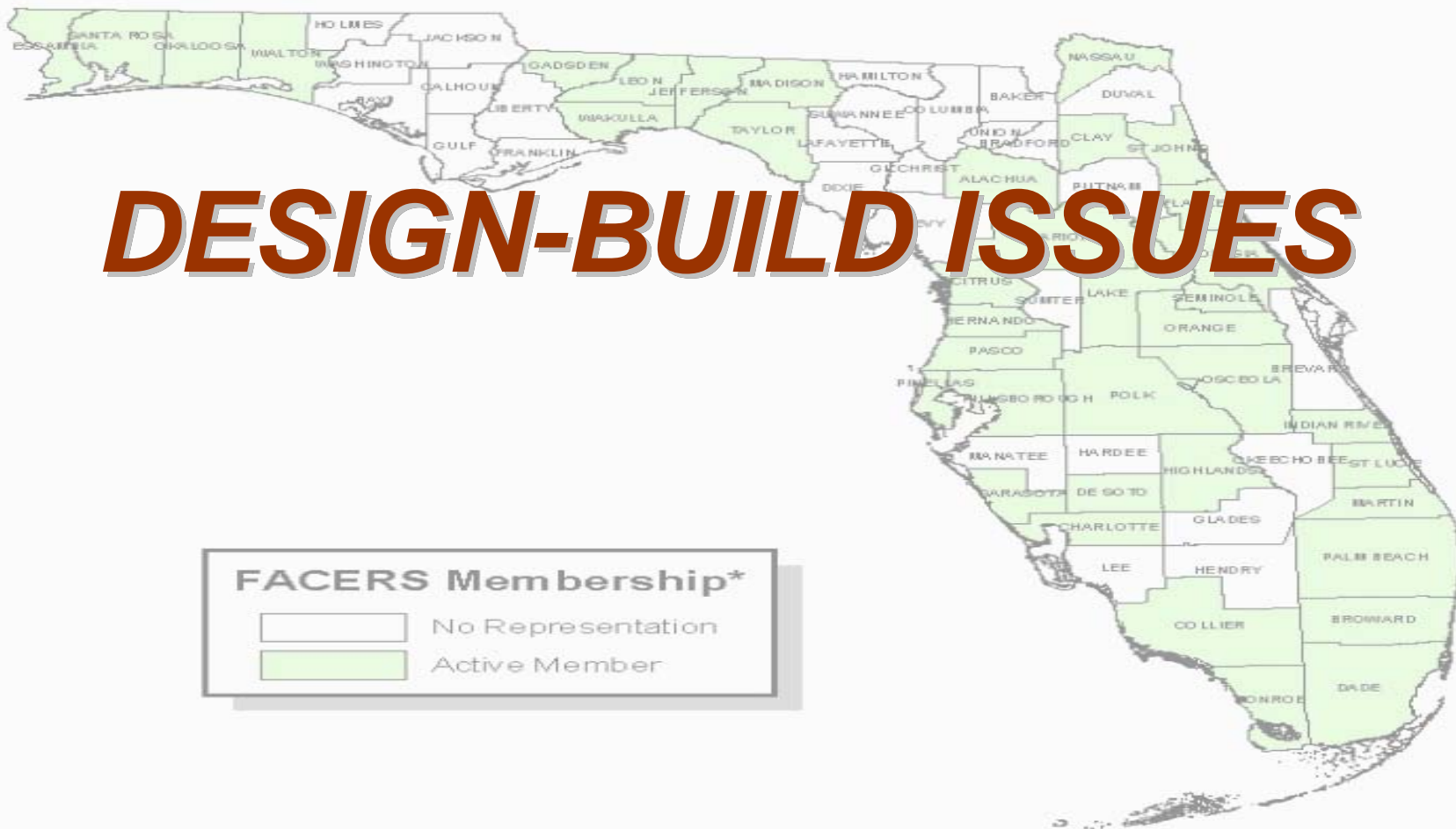
(Qualifications Based Selection or Direct Selection)

- **Owner's project definition/needs analysis**
- **Request for qualifications**
- **Shortlist most qualified for the project**
- **Interviews**
- **Select best qualified team**

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DESIGN-BUILD ISSUES



FACERS Membership*

- No Representation
- Active Member

*Based on 2003 Membership

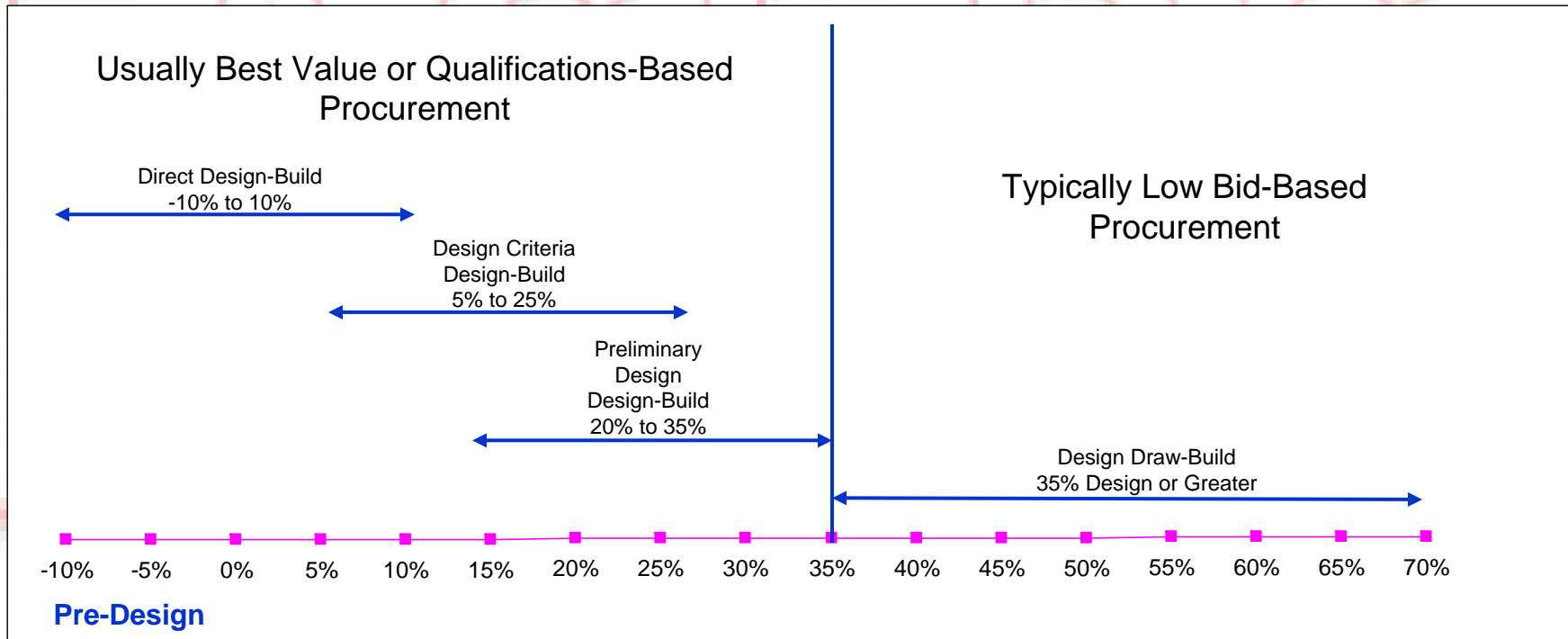
Design-Build Issues

- **Percentage of Design – Provided & Required**
- **Stipends**
- **Warranty/Guarantee**
- **Geotechnical**
- **Right of Way**

Design-Build is “not” assigning all risks to the contractor.

Percentage of Design

(As included in or required by Design-Build RFP)



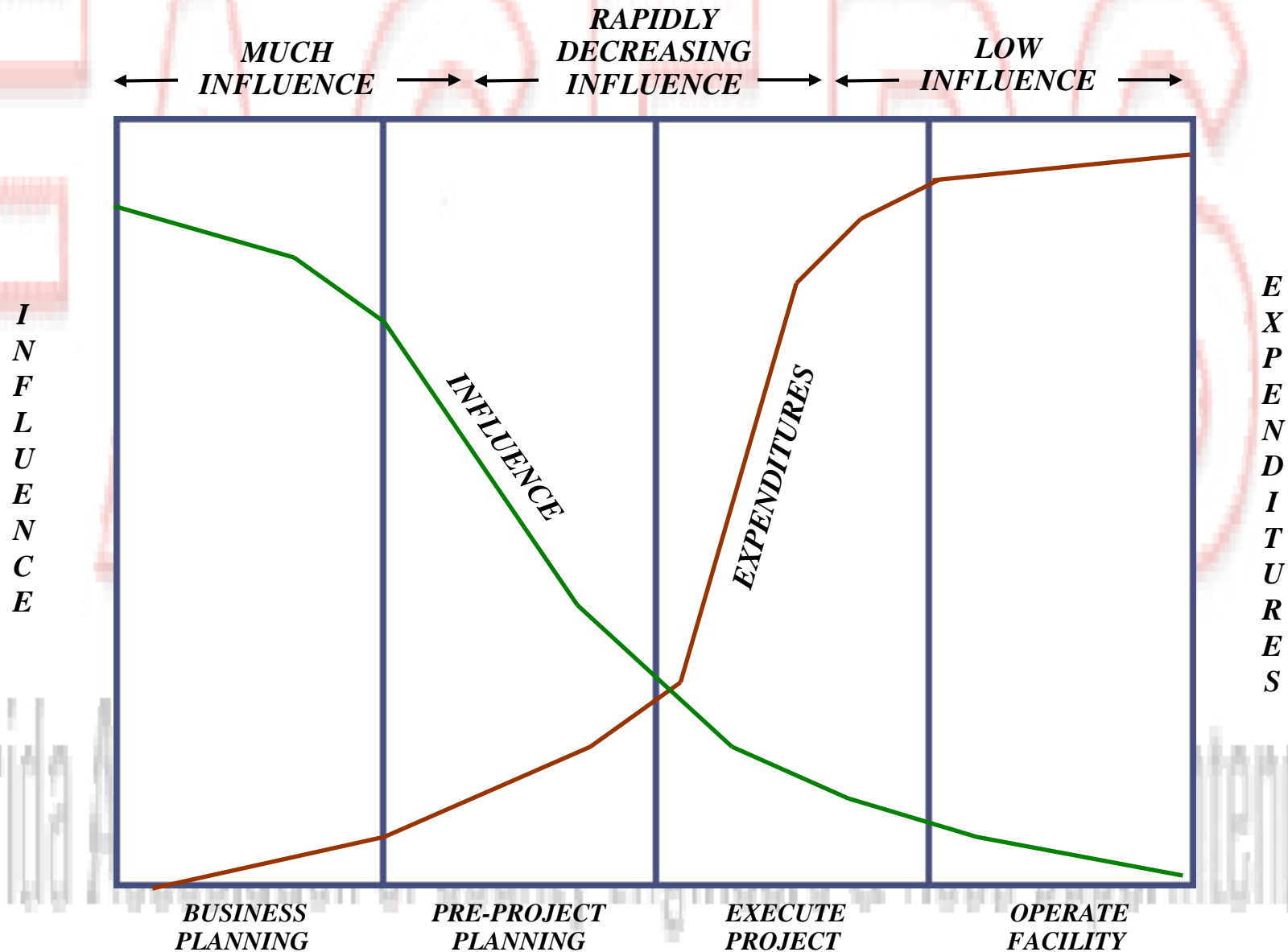
Percentage of Design

(As included in or required by Design-Build RFP)

- **30% design or more leads to price oriented selection**
- **Less design provided or required - more emphasis on technical/qualifications criteria or on design-builder's proposed solution**
- **After initial experiences owners provide or require less design**
 - Recognition of cost and time required to prepare design that may not be ultimately constructed
- **Experienced owners prefer more emphasis on qualifications**

Influence vs. Expenditure Curves

Design-Build Team on-board early allows best opportunity to achieve objectives



Design-Build Issues

- **Percentage of Design – Provided & Required**
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DESIGN-BUILD INSTITUTE OF AMERICA



*Based on 2003 Membership

Design-Build Institute of America (DBIA)

•Mission

The mission of the Design-Build Institute of America is:

- Achieve and maintain recognition as the industry center of expertise for design-build practice
- Lead the expansion of design-build utilization across all industries and markets

DBIA will pursue this mission in a manner that is inclusive of all project participants in integrated service delivery.

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Design-Build Institute of America (DBIA)

- **Programs/Committees**
- **Manual of Practice**
- **Membership**
- **Florida Chapter**

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Open Discussion

FACERS Membership*

- No Representation
- Membership

Questions ?

*Based on 2003 Membership