



DESIGN-BUILD;

Is Reality Meeting Expectations

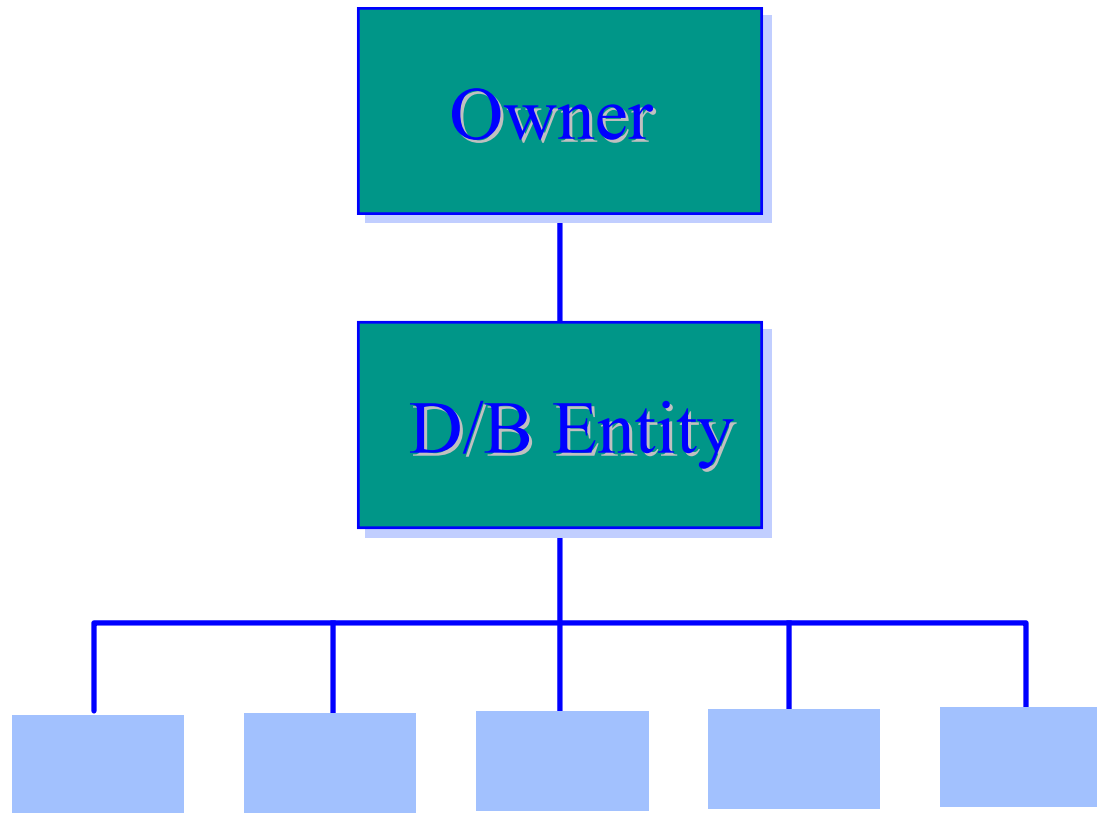
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*Charles (Chuck) J. Williams, PE
President & CEO, ODC Synergy*

DESIGN - BUILD DELIVERY

- *Single Firm or Entity*
- *Single Point of Responsibility*
- *Integrates Design-Procure-Construct*
- *Architect or Engineer of Record & Constructor of Record*
- *Warrants Design & Construction Quality and Performance*

Design/Build Method Project Structure



Multiple Construction And Equipment Packages

Design / Build Continuum

Design - Build to
performance
specs
Design @ 10%-
20%


Design - Build to
Design Criteria
Design @ 20%-
30%

Design - Build to
Prelim. Design
Design @ 30%-
40%

Design Draw
- Build
Design @
40%-50%

Evaluated Bid - Qualifications Based Selection

Typically Low
Bid



50 %

*OF ALL NEW (Non -residential)
CONSTRUCTION*

BY YEAR 2010 ??

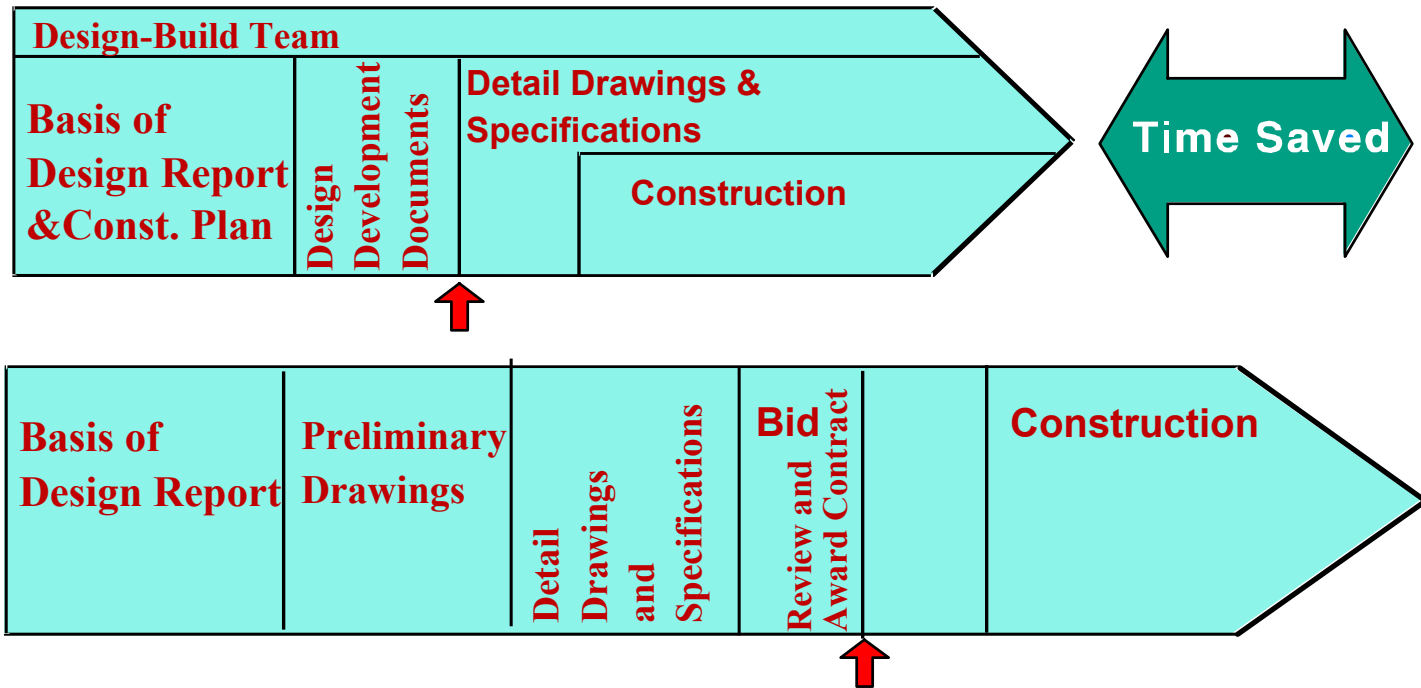
EXPECTED BENEFITS

- *Shorter Project Duration*
- *Less Owner Risk*
- *Less Change Orders*
- *Less Surprises*
- *Lower Owner Costs*
- *Lower Project Costs*
- *Comparable Quality*
- *Better Constructability*
- *More Flexibility for Owner Changes*
- *Better Warranty Service*

Shorter Project Duration

- *Studies indicate; 10 - 30 % Savings*
- *Fed DOD; 18 % Savings*
- *25 % if Successful Partnering*
 - *Mutually Address Interfaces*
 - *Mutually Overcome Obstacles*
 - *Mutually Support Objectives*

Typical Project Schedule



Less Risk For Owner

- *Single Responsibility*
- *Early Discussion of Risk Management*
- *Less conflicts; more “Team Ball”*
- *Reduced Disputes & Claims*

Less Change Orders

- *Design-Builder covers design errors & omissions*
- *Design-Builder warrants both Design & Construction*
- *Better Control of “Scope Creep” and “Scope Leap”*

Less Surprises

- *Early Focus on Mutual Understanding of Project Requirements*
- *Cost & Schedule are Fixed Earlier in Project Duration*
- *Schedule Urgency Promotes Proactive Approach*

Lower Owner Costs

- *Less Owner Contracts Administration*
- *Less Coordinating Parties*
- *Less Owner Interfaces*
- *Shorter Project Duration*
- *More Efficient Owner Involvement*

Lower Project Costs

- *Studies indicated 6 -13 %*
- *Sources of savings*
 - *Shorter project duration*
 - *designing to build*
 - *design supports construction*
 - *innovation*
 - *more efficiencies*

Comparable Quality

*“IT IS IMPOSSIBLE TO HAVE
TOTAL QUALITY MANAGEMENT
WITHOUT BEING ABLE TO CONTROL
BOTH DESIGN AND CONSTRUCTION”*

*William Hayden, Quality
Management Expert and “Deming
Disciple”*

Improved Constructability

- *Builder has Early Involvement*
- *Project Designed to be Built*
- *Early Selection of Means & Methods*
- *Early “Buy-in” by all Parties*

Flexibility in Owner Changes

- *DB Team can better evaluate both Technical Impact & Constructability*
- *Includes Cost & Schedule Impact*
- *More Easily Integrated into Project*
- *Easier Communication & Mutual Understanding*

Better Warranty Service

- *Less Warranty problems due to single source responsibility, and scope usually extends through performance*
- *No debate about whether it's a designer or constructor problem*
- *Qualifications based and Best Value selection process is motivator to maintain client service*

Construction Industry Institute (CII) Study

- *351 Projects*
- *Various types / Industry sectors*
- *Compared performance between DBB, CM@R, & DB*
- *Performance evaluated - Cost, Schedule, Quality areas*

Construction Industry Institute (CII) Study

- *Design-Build Performance compared to Design/Bid /Build*
 - *Unit Cost - 6% less*
 - *Construction Time - 12% faster*
 - *Project Time (design & const)- 33% faster*
- *Quality on a 10 point scale -*
 - *Start-up; Call Backs; O&M; Exterior & Structure; Interior; Environmental; Equipment*
 - *DB outperformed D/B/B in every category*

Expected Constraints & Threats

- *Legislative, Licensing & Permitting Restrictions*
- *Organizational & Political Resistance*
- *Pre-qualification of D/ B Firms*
- *Owner Ability in Determining Requirements*
- *Perceived Conflict of Interest*
- *Limited Standards Usage*
- *Limited Owner Experience & Expertise*
- *Lack of Experienced D/ B Firms*
- *Industry Obstructions*

Legislative, Licensing & Permitting Restrictions

- *State & Local Legislation*
 - *30+ states have capability*
 - *Charter cities have flexibility*
- *Engineer and Architect Licensing*
 - *modifications in progress while maintaining professional purpose*
- *Permitting Agencies mission and practices*

Organizational & Political Resistance

- *Organizations Resistant to Change*
- *Industry Players Resistant to Change*
- *Political Entities Resistant to Change*
- *Conflict with Organizational focus*
- *Trying to Do “New Things” the “Old Way” will not produce Best Results*

Inability to Pre-qualify Firms

- *Reduces Best Competitors Interest*
- *Reduces Benefit / Cost Opportunity*
- *Increases Competitor's Risk*
- *Increases Owner Risk*
- *Reduces Probability of Selecting Proven Team*

Difficulty in Determining Requirements

- *Establish Basic Requirements w/o Detail Design*
- *No Design by RFI & Submittal*
- *Defining Preferences*
- *Owner Organizational Coordination; internal and with 3rd parties*

Perceived Conflict of Interest

- *Traditional Perspective*
- *Quality Assurance & Quality Control*
- *Fox in the Hen-house*
- *Owner's Representative, if req'd*

Industry Standards Usage

- *Limited Public Records*
- *Limited Documentation*
- *Some Industry Efforts*
 - *AIA, AGC, EJCDC, FIDIC*
 - *DBIA*

Limited Owner Experience

- *Limited History & Familiarity*
- *Limited Understanding of Process*
- *Existing Procedures Not Applicable*
- *Partnering and Risk Sharing*
- *Difficulty in Experimenting*
- *Untested Evaluation Methods (Best Value vs Low Price)*

Lack of Experienced Design-Build Firms

- *New Market*
- *New Insurance & Bonding Issues*
- *New Working Partners*
- *New Risks (eg; performance)*
- *New Approach between participants*

Industry Obstructions

- *Market Changes*
- *Greater Risk*
- *Industry Roles & Responsibilities*
- *New Competition*
- *Heavier Financial Requirements*



*Let's talk about some
Completed Projects,
and
Success Factors*

Maxson Wastewater Treatment Plant - City of Memphis - (Public)

Facility

- Add treatment for organic load capacity

Professional Procurement

- D/B with prequal procedure
- Low bid w/ alternatives

Costs/Schedule

- \$12 Million w/20 mo. schedule

Special Features

- 20% Savings under Owner budget
- Project Completed 2 mos ahead of schedule to meet treatment requirement

MAXON WWT



Bayou Marcus Wastewater Reclamation

Escambia County; Pensacola, FL - (Public)

Facility

- Replace existing with new 8 mgd plant

Professional Procurement

- D/B based on prelim. engineering
- Pre-qualified list - low price w/ alt's

Costs/Schedule

- \$10 Million w/24 mo. schedule

Special Features

- Delivery restructured project delivery after bids exceeded owner budget
- Owner purchased equipment
- Work completed 2 mos. ahead of schedule

BAYOU MARCUS



Ford Road Water Plant

Indianapolis Water Co.; IN - (Private)

Facility

- New 4 mgd water plant; greenfield site

Professional Procurement

- Design/Build w/max price + shared savings
- Negotiated selection

Costs/Schedule

- Value \$4 million w/7 mo. schedule

Special Features

- Project complete; 2 mos. ahead of schedule
- Savings 5% of GMP

IWC FORD



Milwaukee Ozone Plants

City of Milwaukee - (Public)

Facility

- Ozonation systems - existing water plants
 - Linnwood - 275 mgd
 - Howard Ave. - 105 mgd

Professional Procurement

- Design / Build w/ Guaranteed Max Price
- Pre-qual. list / evaluated price w/ alternatives

Costs/Schedule

- Value \$40 Million w/17 mo. Schedule
- \$8 Million in added scope as change order

Special Features

- Owner pre-qualified ozone equipment
- Bid price 20% less than initial budget
- Project Complete
- \$1Million savings to GMP

MILWAUKEE



Intel Pretreatment Project

Phoenix - (Private)

Facility

- Expanding pretreatment (filtration) system

Professional Procurement

- D/B Negotiated contract; reimbursable; open book
- Equipment - Pre-qual. - Low Bid
- Balance of plant - Low bid

Costs/Schedule

- \$1 Million Rev.; w/4 mo. Schedule
- Project Complete on schedule

Special Features

- Partnering to develop Hi-tech solution
- Owner procured some equipment (Process)

Menu of Success

- *Clearly Defined Project w/ min. external restraints and influences*
- *Funds available & committed*
- *Consultant assists Owner to define scope, performance, and preferences*
- *Pre-qualification process; 3-5 firms*
- *Designer shares DB Risk - integrated into the DB team (no over the fence)*
- *DB Contract has fair allocation of Risk*

Menu for Success (cont'd)

- *Owner promotes innovation and allows flexibility of Design Builder (means and methods)*
- *Owner proactive w/ permitting agencies; work packages*
- *Owner proactive in Design Submittals - Workshops*
- *Each Party actively controls own staff*
- *Changes are negotiated promptly*

Construction Industry Institute (CII) Study

- *Best performing projects-*
 - *Owner decision making*
 - *Good scope definition*
 - *Excellent team communication*
 - *Qualified contractors*
- *Worst performing projects-*
 - *Contractor engaged late in design*
 - *Limited team experience*
 - *Onerous contract clauses*
 - *Poor decision making process*
 - *No pre-qualification process*

CONCLUSION

- *Continued Obstacles*
- *Continued Successes*
- *Continued “Lessons Learned”*
- *Improved Understanding*
- *Yes - Reality is meeting Expectations, but not without hard work and, occasionally, some disappointments along the way*