

# Pentagon Renovation Program

## SMPS - NASHVILLE

### PROGRAM MANAGEMENT CHALLENGE



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**PROGRAM MANAGEMENT CHALLENGE**

**This is the Public Perception...**  
**but the reality is more complex and less pleasant**



**Pentagon Renovation Program** logo on the left and **DBIA Design-Build** logo on the right.

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**PROGRAM MANAGEMENT CHALLENGE**

**Design and Construction is Important Because ...**

- Economic Engine that Drives the U.S. Economy
- 7.6 Million Jobs
- Over 5% of the Non-Farm Workforce
- \$21.27 Per Hour Construction Average Wage
- 21% Higher than Average Non-Supervisory Job
- \$1.16 Trillion Economic Activity, October 2007
- \$500 Billion in 2006 for Materials and Supplies
- 11% of Total U.S. Manufacturing Shipments
- \$36 Billion in Construction Machinery Purchases
- 11% of Total U.S. Machinery Shipments
- 788,000 Construction Companies

Source: Ken Simonson, Chief Economist, Associated General Contractors, 2007

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**PROGRAM MANAGEMENT CHALLENGE**

**What Complaints do I Hear?**

**From Contractors:**

- We only get evaluated on how low our price is
- No consideration of performance or quality in source selection
- We are trapped in a system that rewards "gaming"
- Bid shopping by general contractors kills subcontractors
- Owners don't care who the subcontractors are
- Owners act like they are playing a game

**From Owners:**

- Contractors lowball bids then seek change orders
- We must constantly inspect to achieve quality
- Everything is an argument
- "Funny Math"... everything costs more
- Cannot predict final cost or schedule
- Architects and Contractors fight constantly for turf...not success
- Contractors act like they are playing a game

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**PROGRAM MANAGEMENT CHALLENGE**

**The Challenge to Industry**

- General characteristics of the U. S. design and construction marketplace**
  - Falling productivity
  - Small company size and fragmentation
  - Reduced wage competitiveness
  - Increased international competition

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**PROGRAM MANAGEMENT CHALLENGE**

**Productivity is Falling ...**  
When Compared to Other Industries

**Construction & Non-Farm Labor Productivity Index (1964-2003)**  
Constant \$ of contracts / workhours of hourly workers  
Sources: US Dept. of Commerce, Bureau of Labor Statistics

Year	Construction Productivity Index (1964 = 100%)	Non-Farm Productivity Index (1964 = 100%)
1964	100.00%	100.00%
1968	100.00%	110.00%
1972	100.00%	120.00%
1976	100.00%	130.00%
1980	100.00%	140.00%
1984	100.00%	150.00%
1988	100.00%	160.00%
1992	100.00%	170.00%
1996	100.00%	180.00%
2000	100.00%	190.00%
2003	100.00%	220.00%

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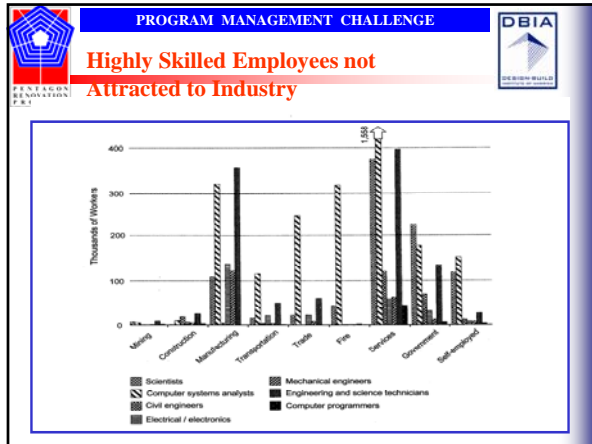
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- PROGRAM MANAGEMENT CHALLENGE**
- Why do we have these problems?**
- The world has moved on to design-build ... we haven't
  - We emphasize initial cost only
  - Our contracting approaches do not reward excellence
  - Lack of industry and government leadership in setting goals
  - Result: American technological leadership has been lost

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**PROGRAM MANAGEMENT CHALLENGE**

**Why do we have these problems?**

**BECAUSE OF THE WAY WE DO BUSINESS**

- The world has moved on to design-build ... we haven't
- Design-build
- P
- Lack of industry and government leadership in setting goals
- Result: American technological leadership has been lost

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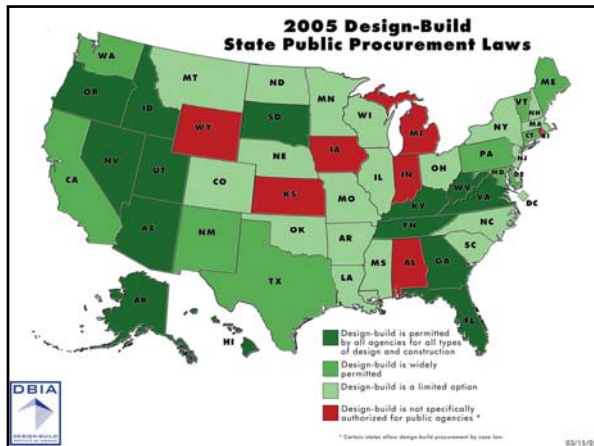
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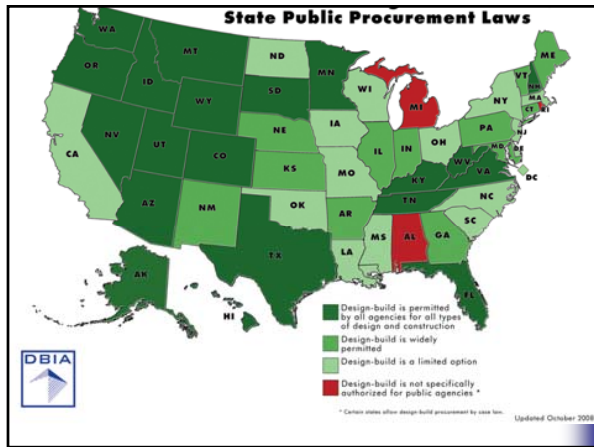
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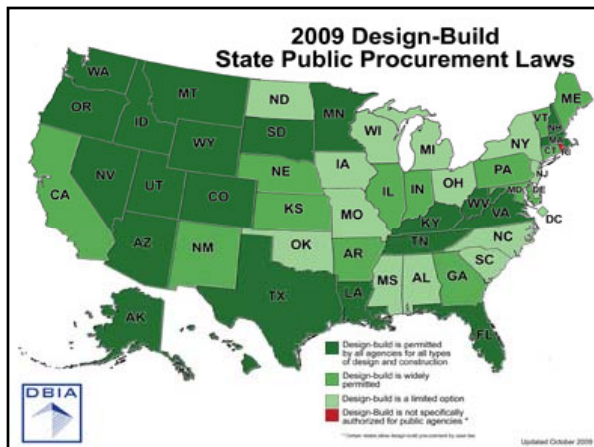
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**PROGRAM MANAGEMENT CHALLENGE**

**Design-Build is Coming**

**The question is: In What Form?**

- Haphazard?
- Driven by accident and circumstance?
- Inconsistent from state to state?
- Without the best interests of the industry and its customers at heart?

**OR**

- Consistent across the country?
- Well thought out and logical?
- Designed to ensure best outcome for all parties?
- Led by industry leaders to ensure fairness?

**YOU MUST DECIDE!**

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**PROGRAM MANAGEMENT CHALLENGE**

**Observation**

Every time one of my programs appeared on the front page of the Washington Post.....

For good or for ill ....

It was because a contractor either did their job well or poorly.

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**PROGRAM MANAGEMENT CHALLENGE**

**Observation**

I soon came to the conclusion that to be successful....

**My job was to make an acquisition program work and to help make other people successful**

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**PROGRAM MANAGEMENT CHALLENGE**

**THE OLD WAY DIDN'T WORK**

**OWNER'S TEAM**

- **NO ONE PERSON RESPONSIBLE FOR PROJECT SUCCESS**
- **TEAM ORGANIZED BY FUNCTIONS, NOT PROJECTS – RESULTED IN SILOS – UNFOCUSED PROJECT RESPONSIBILITY**
- **SILO MANAGERS FOCUSED ON SILO SUCCESS - NO ONE RESPONSIBLE FOR PROJECT SUCCESS – UNFOCUSED AUTHORITY**
- **SILO TEAM MEMBERS PERFORMANCE EVALUATIONS BASED ON SILO SUCCESS NOT PROJECT SUCCESS**
- **SILO MANAGERS UNABLE TO MAKE INFORMED SCHEDULE VERSUS CONTENT TRADE-OFFS ON PROJECTS**
- **END RESULT: OWNER OPTIMIZED SILOS NOT PROJECTS**





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**PROGRAM MANAGEMENT CHALLENGE**

**THE OLD ORGANIZATION**

Requirement Team	Planning Team	Design Team	Operations Team	Support Team
Team Members	Team Members	Team Members	Team Members	Team Members

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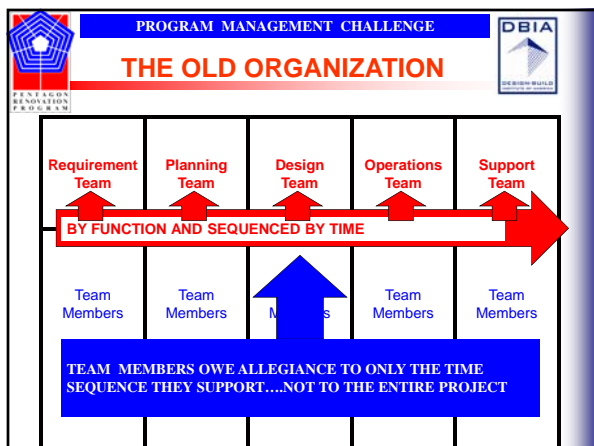
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**PROGRAM MANAGEMENT CHALLENGE**

**THE OLD WAY DIDN'T WORK**

**ACQUISITION PROCESS**

- **LOW BID SELECTION – ATTRACTED AND THEN SELECTED THE WRONG PEOPLE FOR THE WRONG REASON**
- **EVALUATION CONCENTRATED ON PRIME CONTRACTOR ... SPECIALTY CONTRACTORS NOT SIGNIFICANT IN EVALUTION**
- **TRADITIONAL DETAILED SOW HAD OWNER TELLING INDUSTRY EXPERTS HOW TO DO THEIR JOBS**
- **OUR CONTRACTS ASSUMED WE WOULD FAIL – PUNISHMENT**
- **THERE WERE ONLY PENALTIES, NO REWARDS FOR GOOD WORK**
- **END RESULT: WE WERE NOT OPERATING AS A TEAM**





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**PROGRAM MANAGEMENT CHALLENGE**

**CAME THE REVOLUTION ...**

**OWNER'S TEAM**

- **SILOS TRANSFORMED INTO INTEGRATED PROJECT TEAMS (IPT'S) RESPONSIBLE FOR INDIVIDUAL PROJECTS – FOCUSED RESPONSIBILITY – ALL FUNCTIONS ON EACH IPT**
- **IPT'S HEADED BY A PROJECT MANAGER RESPONSIBLE FOR PROJECT SUCCESS – FOCUSED AUTHORITY**
- **IPT TEAM MEMBERS PERFORMANCE EVALUATIONS BASED ON DEMONSTRATED PROJECT SUCCESS**
- **PROJECT HAD AUTHORITY, RESPONSIBILITY AND RESOURCES TO MAKE SCHEDULE VERSUS CONTENT TRADE-OFFS**
- **END RESULT: OWNER OPTIMIZED PROJECTS NOT SILOS**


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**PROGRAM MANAGEMENT CHALLENGE**

**THE NEW ORGANIZATION**

Functional Teams	Project 1	Project 2	Project 3	Project 4	Project 5
Requirements Team					
Planning Team					
Design Team					
Operations Team					
Support Team					

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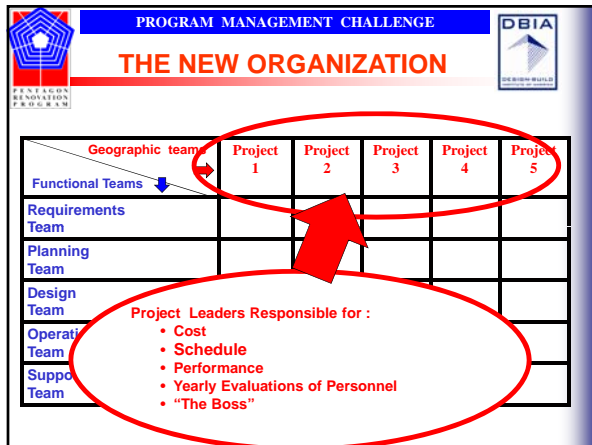
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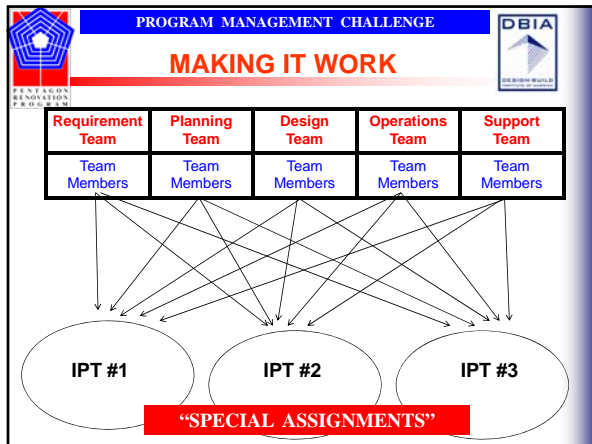
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**PROGRAM MANAGEMENT CHALLENGE**

**CAME THE REVOLUTION ...**

**CONTRACTING PROCESS**

- USED BEST VALUE SOURCE SELECTION - SELECTED RIGHT PEOPLE FOR THE RIGHT REASONS - INTEGRATED ASSESSMENT APPROACH
- EVALUATED TEAMS, NOT JUST PRIME CONTRACTORS... TEAMS COMMUNICATED FROM THE OUTSET - WHEN IT COUNTED
- OWNER COMMUNICATED REQUIREMENTS NOT DEMANDS - THE COMPETITION DETERMINED THE BEST WAY TO DO THE JOB
- THE DESIGN BUILDER INTEGRATED WITH OWNER'S IPT TEAMS
- CONTRACTS ADDED A SUCCESS PERSPECTIVE - THERE WERE REWARDS FOR HIGH PERFORMANCE
- END RESULT: WE BEGAN OPERATING AS A TEAM

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**PROGRAM MANAGEMENT CHALLENGE**

Structural steel, running through all five floors, strengthens the walls around the blast resistant window units on the E and A-rings. A geo-technical mesh is stretched between the steel tubes to prevent debris from becoming shrapnel in the event of an external explosion.

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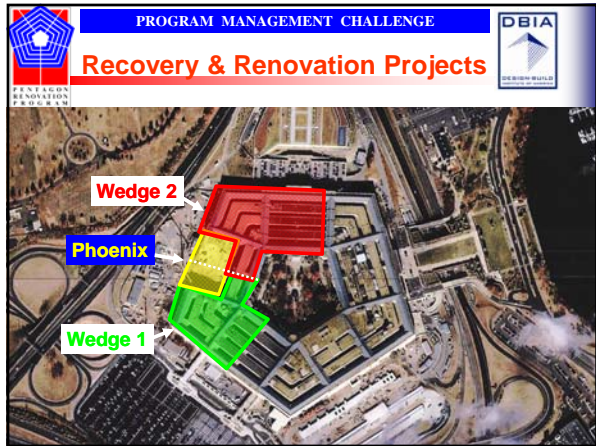
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PROGRAM MANAGEMENT CHALLENGE

**Management versus Leadership**

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PROGRAM MANAGEMENT CHALLENGE

**Management versus Leadership**

Managers:

- Plan
- Organize
- Coordinate
- Direct
- Train

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PROGRAM MANAGEMENT CHALLENGE

**Management versus Leadership**

Leaders:

- Vision
- Courage
- Communication
- Organization
- Motivation

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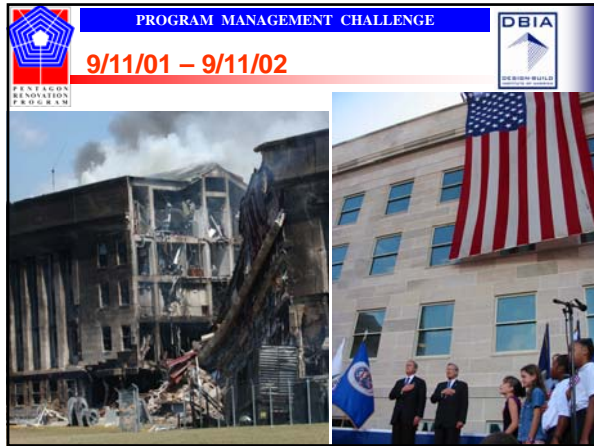
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**PROGRAM MANAGEMENT CHALLENGE**

**Successful Program Management**



- Hire better contractors
- Give them incentives to achieve your goals
- Set clear goals
- Operate as a team
- Measure progress against goals
- Reward Achievement

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**PROGRAM MANAGEMENT CHALLENGE**

**How We Reduced the Schedule**

**After the 9-11 Attack on the Pentagon By Using Design-Build**

	Wedge 1	Phoenix
• Reduced Demolition & Abatement.....	2 Yrs.	1 Mo.
• Reduced Core & Shell Construction.....	1.5 Yrs.	5 Mos.
• Reduced Tenant Fit-out Construction.....	1 Yrs.	6 Mo.
• Reduced IM&T Installation.....	1 Yrs.	5 Mo.
• Reduced Furniture, Fixtures & Equip Installation	9 Mos.	3 Mo.
<b>Total Schedule Time</b>	<b>3 Years</b>	<b>1 Year</b>

**AT DRAMATICALLY LOWER COST**

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**PROGRAM MANAGEMENT CHALLENGE**

**It's the Team ... not the Tools!**

... and Acquisition Managers and Program Managers Control the Process ...

- **Success does NOT result from new technologies, techniques, software, equipment, materials or other tools**
- **Success comes from effective teamwork which ENABLES new technologies, techniques, software, equipment, materials or other tools**
- **The fundamental key to success is the integration of an ENTIRE TEAM from the very earliest possible time.**

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PROGRAM MANAGEMENT CHALLENGE

## Observed Benefits



- REDUCED COST
- REDUCED SCHEDULE
- HIGHER QUALITY
- MORE SATISFIED OWNER
- REDUCED CLAIMS AND LITIGATION
- BEST VALUE TO THE TAXPAYERS

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PROGRAM MANAGEMENT CHALLENGE

## DESIGN-BUILD PERFORMANCE



- DESIGN-BUILD PERFORMANCE  
(COMPARISON OF DESIGN-BUILD VERSUS CM AT RISK, DESIGN-BID-BUILD)
  - COST.....6 % LOWER
  - CONSTRUCTION TIME.....12 % FASTER
  - PROJECT TIME.....33 % FASTER
  - QUALITY.....HIGHER IN ALL 8 MEASURED CATEGORIES

SOURCE: CONSTRUCTION INDUSTRY INSTITUTE / PENN STATE

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PROGRAM MANAGEMENT CHALLENGE

## Research Study



**CONSTRUCTION INDUSTRY INSTITUTE - PENN STATE**

- 351 Projects
- 5K to 2.5M S.F.
- Various types/Industry sectors
- Compared performance between D-B-B, CM at Risk, and D-B
- Performance evaluated Cost, Schedule, Quality areas

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**PROGRAM MANAGEMENT CHALLENGE**

**GETTING THE PERFORMANCE YOU WANT**

**2. Give them flexibility, opportunity to succeed, & accountability**

**1. Pick the right team**

**3. Reward them for performing to your satisfaction**

**Requirements**  
--Performance-based  
--Flexible

**Source Selection**  
--Trade-off decision  
--Reliant on past performance  
--Assesses cost realism

**Contract Incentives**  
--Focuses on non-cost performance  
--\$\$=effective motivator

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**PROGRAM MANAGEMENT CHALLENGE**

**Pre-Solicitation Characteristics**

- Acquisition Strategy Panels...focus and consolidate planning...joint program and acquisition action
- Streamlined Documentation... communicate quickly and accurately
- New rules...empower participation and rapid decision making
- Operate organization as a matrix from the outset

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**PROGRAM MANAGEMENT CHALLENGE**

**Solicitation Characteristics**

- Seek to learn best practices from others
- Use "Preamble" document to clearly communicate your approach
- Build to Budget \*
- Use two-phase source selection process
- Use pure performance specifications
- Meet with industry and communicate and learn from them
- Not more than four evaluation factors
- Build an inclusive team including customers, users, operators, maintainers (and eventually, competitors)
- Impose strict page limits on solicitation and proposals
- Publish drafts for industry comment

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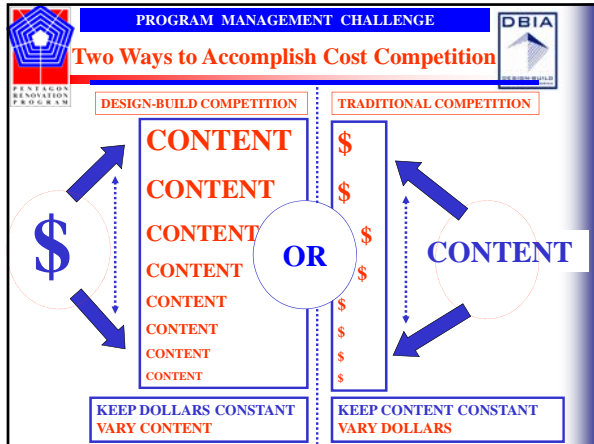
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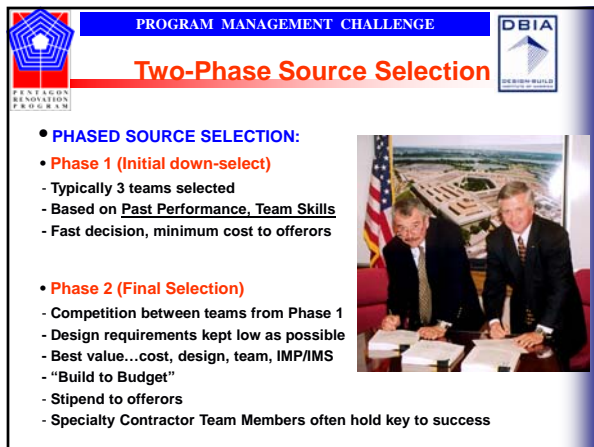
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**PROGRAM MANAGEMENT CHALLENGE**

**Source Selection Process**

- Use inclusive team for evaluation process
- Evaluate competing teams...not just the prime
- Phase one is a down-select, not a pre-qualification
- Proposals never more than 50 pages long
- Cost proposals must be to budgeted amount
- Technical evaluators must read cost proposals
- Cost team must read technical proposals
- Require oral proposals in addition to written
- Evaluate oral and written proposals 50/50
- Oral proposals test real life problem solving ability



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**PROGRAM MANAGEMENT CHALLENGE**

**WHAT DOES IT MEAN TO YOU?**

- **IMPLICATIONS:**
  - TEAM PERFORMANCE AND CAPABILITIES MORE IMPORTANT
  - TEAMS WILL FORM MUCH EARLIER
  - THERE WILL BE A PREMIUM ON BEING ABLE TO SOLVE PROBLEMS
  - THERE WILL BE EMPHASIS ON KNOWING THE LATEST TECHNOLOGY



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**PROGRAM MANAGEMENT CHALLENGE**

**Contract Characteristics**

- Use award fees and incentives to reward performance
- Award fee evaluations based on objective data
- Award fee decisions are made SUBJECTIVELY
- Incentivize cost control
- Aggressive IV&V or Commissioning
- Use Earned Value Analysis to fit your circumstance
- Monthly Program Reviews for entire team
- Government must commit to performance and report
- Aggressive use of metrics

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**PROGRAM MANAGEMENT CHALLENGE**

**Contracting Structure**

**Give Contractors Incentives to Achieve Your Goals**



- Award Fee**
  - Proposal has Zero Profit – Just Cost
  - Award fee up to 10% of contract price
  - Fee based on performance – 3 month intervals
- Incentive Fee**
  - Contractor and the government split any savings
  - Also split overruns 50/50 up to 120% of the contract price
- Threshold**
  - Gate between award fee and potential under-run earnings
  - Contractor must achieve at least 85% (average) on all award fee determinations to collect their share of any under-run
  - Keeps contractor focused on award fee (performance, customer satisfaction); prevents cutting corners and sacrificing quality

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**PROGRAM MANAGEMENT CHALLENGE**

**Set Clear Goals**

**Performance Requirements**

<b>ENERGY EFFICIENCY</b>	<p><b>Architectural</b> Pertains to the energy efficiency of architectural systems, pertains to industry accepted practice for each system/product in terms of thermal resistance ("R" and "U") values, light transmittance and so forth. The A &amp; E ring windows have a U value of 1.5 W/(Sq.M-C). The building component U values (i.e. walls, roofs, etc.) shall be determined by the Design Build contractor and must comply with ASHRAE Standard 90.1-1999 (latest edition).</p> <p><b>Mechanical</b> All installed HVAC equipment/systems shall meet the requirements of Section 6.0505(A)(4) ASHRAE Standard 90.1-1999 (latest edition).</p>	<p>With respect to architectural systems, pertains to industry-accepted practice for each system/product in terms of thermal resistance ("R" and "U") values, light transmittance and so forth. The A &amp; E ring windows have a U value of 1.5 W/(Sq.M-C). The building component U values (i.e. walls, roofs, etc.) shall be determined by the Design Build contractor and must comply with ASHRAE Standard 90.1-1999 (latest edition).</p>
<b>LECA</b>		
<b>LIFE CYCLE ARCHITECTURE</b>	<p>Pertains to the total cost-of-ownership reference covering the evaluation of costs involved in acquiring, installing, operating, maintaining, and disposing of project assets over the entire asset service life. This reference judges lowest total cost-of-ownership for an asset delivery expected function and reliable performance over the 30-year intended life of the Program investment to be the preferred procurement choice. The total cost-of-ownership evaluation includes considerations for whether or not the asset is reusable and/or capable of being reprocessed, reused, and renewable at a cost savings to the Program during its expected life cycle. This method conforms with the more typical approach of only using lowest first costs for asset procurement.</p>	<p>Reflects Industry Practice terms Identifies measurement terms Provides existing values or capability for elements such as GFM Cites applicable standards, i.e. ASRAE</p> 
<b>LIFE CYCLE ELECT</b>	<p>Pertains to the installed equipment/systems being the most effective over time in reducing costs from purchasing, installing, operating, maintaining, repairing, disposal, and replacing with regards to energy conservation and environmental impact (Energy Performance Contract/Master Maintenance for mechanical equipment life expectancy). As it pertains to main HVAC distribution systems (i.e. main distribution, Junction, string, etc.) to have an estimated useful life of 50 years. As it pertains to chilled and hot water piping, fittings, valves, electro-mechanical control components, etc., to have an estimated useful service life of 30 years.</p>	

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**PROGRAM MANAGEMENT CHALLENGE**

**Operate as a Team**

**Integrated Product Teams (IPTs)**

- Integration of contractor personnel onto teams
  - Contractors working with us to write the RFP
- Design Teaming
- Integration of customers/maintainers onto teams
- Opens lines of communication





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**PROGRAM MANAGEMENT CHALLENGE**

**Measure Progress Against Goals**

- Quarterly Award Fee Determination
- Contractor has input in determination process
- Milestones
- Earned Value
  - Budgeted Cost for Work Scheduled/Budget Cost for Work Performed
- Monthly feedback provided to contractor




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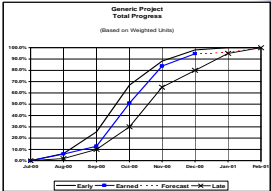
**PROGRAM MANAGEMENT CHALLENGE**

**Measure Progress Against Goals**

**Monthly Metrics**

- Useful for identifying trends and developing rules-of-thumb
- Award fee contracts produce many criteria to judge and reward contractor
- Criteria naturally lend themselves to metrics
- Provides confidence intermediate goals are being met
- Shows positive trends and identifies problems
- Contractor participates in development of the metrics

**Progress on a Banana Curve... Analysis of Early & Late Finish**




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**PROGRAM MANAGEMENT CHALLENGE**

**Reward Achievement**

- Award Fee Evaluations
- Personnel Recognition




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