REBUILDING AND RENOVATING THE PENTAGON

Brian T. Dziekonski, P.E.
Renovation Program Manager
On Cost, On Schedule, Built for the Next 50 Years

http://renovation.pentagon.mil
ORIGINAL CONSTRUCTION

September 11, 1941 to January 15, 1943

Completed in 16 months by working three 5,000-man shifts around the clock.
THE EARLY YEARS

1943 1950s 1960s…

Minimal electrical, communications and HVAC requirements/capacity; Open-bay office environment; Flooding conditions.
A SMALL CITY

The Pentagon has never undergone a major renovation.

34 acres
6.5 million sq. ft.
3 Empire State Bldgs.
7,748 windows
17.5 miles of corridors
25,000 personnel
1,000,000 calls per day
Police force
Metro station
Fire Station
Health Facilities
Post Office
Mini-mall
Heliport
HAZARDOUS WORKING CONDITIONS

Major building systems beyond repair, hazardous materials (PCBs, Asbestos, Mercury, Lead) throughout, poor energy efficiency.

“The Pentagon is a classic example of “disinvestment” in federal buildings. For at least 10 years, needed major repairs and alterations to the Pentagon have been deferred. DoD officials, beginning in 1985, sought operational control of the building.”

GAO Report to the Chairman, Subcommittee on Public Buildings and Grounds, Committee on Public Works and Transportation, House of Representatives

May 1991

GAO/GGD-91-57
Inefficient office space, non-code compliant...
PENREN HISTORY

Core Function = Renovation
Traditional contracting strategies led to cost overruns, schedule delays and potential cancellation.

• 1997 - New Program Manager Assigned – his assessment of the program:

"Costs soared as schedules stretched, then stretched again."

"Consistently failed to meet commitments made to customers."

"Basic work gone wrong."

"It is essential that PENREN improve its performance fast."
GOAL

Implement Approach that Rewards Behavior We Like!
Restructuring of Program Responsibility

- In Function
- In Reporting

Across the Program

- More Communication w/Senior Leaders in Pentagon
- Reorganization - From “stovepipe” to IPT
- Reinvention Laboratory
- Restructuring of Acquisition Approach
  - From Design-Bid-Build to Design-Build
  - From Low Bid to Best Value
  - From Project Specs to Performance Requirements
- Set and Measure Goals and Objectives

Results:

- Projects On or Under Budget
- Ahead of Schedule
Incentives to motivate behavior

Contract Structure

- Fixed-price Incentive (Firm target) with an award fee
- Zero Target Profit
- Award fee up to 10% of contract price - Based on performance
- Contractor and the government split any savings

Contractor and the government split any savings

- Savings splits range from 50/50 to 70/30 percent government/contractor
- Also split overruns 50/50 up to 120% of the contract price

Gate between award fee and potential underrun earnings

- Contractor must achieve at least 85% (average) on all award fee determinations to collect their share of any underrun
Set Clear Goals

- Tell contractor what you want, not how to get there!
- Cost
- Performance
- Schedule
# KEY TO SUCCESS

## Restructure Acquisition Approach

### Matrix Performance Specifications for W2-5

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>OFFICES SUITES</th>
<th>SPECIAL SPACES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-1</td>
<td>0-2</td>
</tr>
<tr>
<td></td>
<td>Senior Executive Office Suites</td>
<td>Executive Offices</td>
</tr>
<tr>
<td>TYPE</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

#### MECHANICAL

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturday</td>
<td>Closed</td>
<td>Closed</td>
<td>Closed</td>
<td>Closed</td>
<td>Closed</td>
<td>Closed</td>
<td>24</td>
</tr>
<tr>
<td>Sunday</td>
<td>Closed</td>
<td>Closed</td>
<td>Closed</td>
<td>Closed</td>
<td>Closed</td>
<td>Closed</td>
<td>24</td>
</tr>
<tr>
<td>Holidays</td>
<td>Closed</td>
<td>Closed</td>
<td>Closed</td>
<td>Closed</td>
<td>Closed</td>
<td>Closed</td>
<td>24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temp. (°C) (Occupied)</th>
<th>Cooling Summer</th>
<th>24 (+-2)</th>
<th>24 (+-2)</th>
<th>24 (+-2)</th>
<th>24 (+-2)</th>
<th>25 (+-2)</th>
<th>21 (+-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating Winter</td>
<td>21 (+-2)</td>
<td>21 (+-2)</td>
<td>21 (+-2)</td>
<td>21 (+-2)</td>
<td>21 (+-2)</td>
<td>21 (+-2)</td>
<td>21 (+-2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Humidity (%RH)</th>
<th>Summer</th>
<th>50%</th>
<th>50%</th>
<th>50%</th>
<th>50%</th>
<th>50%</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>30%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0.4 A Ventilation Rate</th>
<th>20 CFM/Person</th>
<th>20 CFM/Person</th>
<th>20 CFM/Person</th>
<th>20 CFM/Person</th>
<th>15 CFM/Person</th>
<th>20 CFM/Pe</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Space Pressure</th>
<th>Positive</th>
<th>Positive</th>
<th>Positive</th>
<th>Negative</th>
<th>Negative</th>
<th>Positive</th>
</tr>
</thead>
</table>

| Total Air Flow (ACH-Minimum) During Occupancy | 6 | 6 | 6 | 12 | 12 | 6 |

| Redundancy | no | no | no | no | no | yes |

| Filtration (% Efficient Pre-Filter / After Filter) | 30/60 | 30/60 | 30/60 | 30/60 | 30/60 | 30/60 |
| Noise Criteria (NC) | 25 | 25 | 25 | 40 | 40 | 45 |
Wedge 2-5 Renovation

Where We Are Today

Wedge 2
- Complete
- Under renovation
- Available 9/05

Wedge 3
- Complete
- Available 11/08

Wedge 1
- Area complete and occupied
- Design complete/ Under Renovation
- Core & Shell Design complete

Wedge 4
- Complete
- Available 11/08

Wedge 5
- Complete
- Available 12/10

Note: Future dates are projections only and subject to modification due to unforeseen scheduling and/or funding issues.
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 metric*
Four Projects registered with USGBC for LEED Certification

- Metro Entrance Facility
- Pentagon Athletic Center
- Wedges 2-5
- Remote Delivery Facility

First DoD facility in NCR to achieve LEED certification

Second DoD facility in NCR to achieve LEED certification
PENTAGON ATTACKED

September 11, 2001  9:37 a.m.

- 184 lives lost
- 110 people severely injured
- 2 million square feet of space damaged
THE CHALLENGE

September 14, 2001

- Recover, Stabilize, Analyze, Demolish, Rebuild, Renovate
- Awarded $1.5 billion worth of contracts by 9/15/2001
- A promise made
ANALYSIS

September 2001
- 1.6 million sq. ft. of fire, water, smoke, mold damage
- 400,000 sq. ft of severe structural damage

October 2001
BEFORE & AFTER

September 11, 2001

September 11, 2002
PENTAGON MEMORIAL

- Commemorates the 184 lives lost at the Pentagon on 9/11/2001
- Concept design selected from more than 1,100 entries in a world-wide competition
- Funded by private donations
- Web site for Pentagon Memorial Fund  www.pentagonmemorial.net

**Milestones:**
- Design select 3/2003
- Design-build contract awarded 8/2003
- Construction start and completion based on funding
November 2001

TODAY
PENTAGON RENOVATION & CONSTRUCTION PROGRAM OFFICE

On Cost, On Schedule, Built for the Next 50 Years!

http://renovation.pentagon.mil