

**19th Annual Meeting of the Society for the Preservation of Natural History Collections
Museum SOS: Strategies for Emergency Response and Salvage**

May 14, 2004



**Recovery & Renovation
of the Pentagon following 9/11:**

The Phoenix Project

Brett D. Eaton

Information & Communications Officer

Washington Headquarters Services





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

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



WORKING CONDITIONS

Inefficient office space, unreliable utilities, non-code compliant...





HAZARDOUS WORKING CONDITIONS



PCBs, Asbestos, Mercury, Lead...

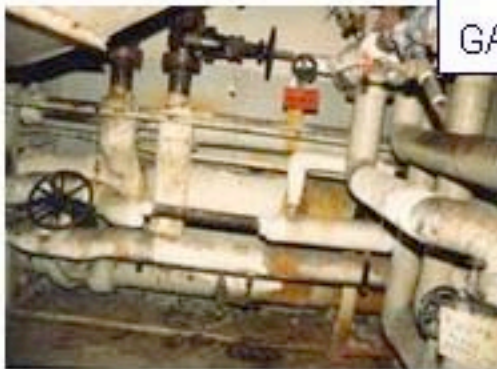
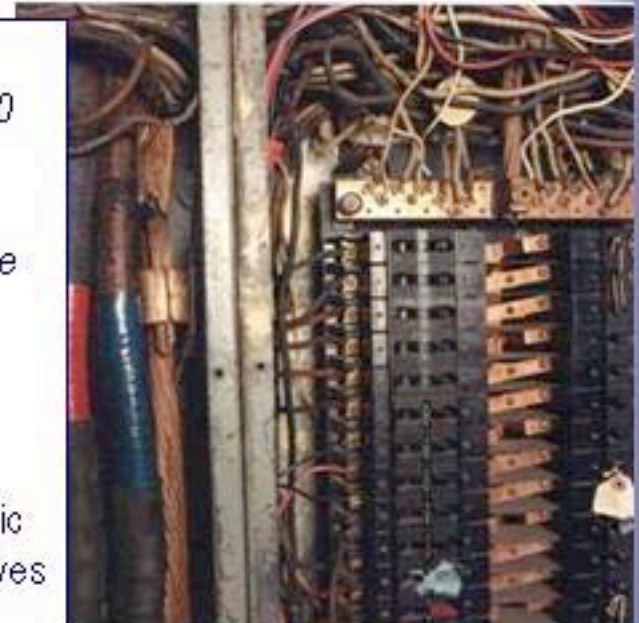


"The Pentagon is a classic example of "disinvestment" in federal buildings. For at least 10 years, needed major repairs and alterations to the Pentagon have been deferred. DoD officials, beginning in 1985, sought operational control of the building."

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





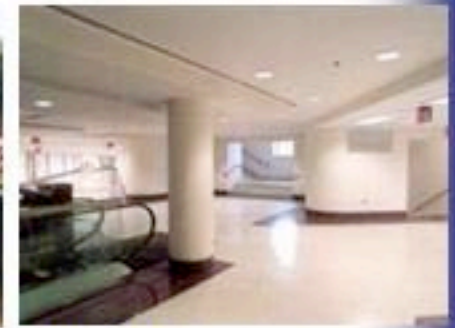
PENTAGON RENOVATION



- Relocate 5,000 people
- Demo, Abate & Reconstruct 1 million sq. feet
- Improve safety, reliability, efficiency



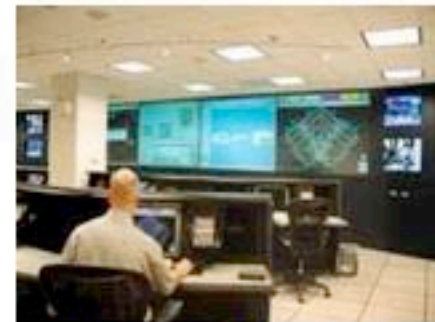
- Replacement of Exterior High Pressure Water Lines



- Fire Sprinklers
- Building Code Compliance



- Blast Resistant Windows
- Structural Steel Tubes
- Geotechnical Mesh



- Monitoring & Control Systems
- Building Operations Command Center



- Automated Smoke Doors



SECURITY INITIATIVES



**Pentagon Remote
Delivery Facility**



Pentagon Metro Entrance Facility



PENTAGON ATTACKED

September 11, 2001 9:37 a.m.

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





PENREN CHALLENGED

September 14, 2001



WEDGE 2

WEDGE 1

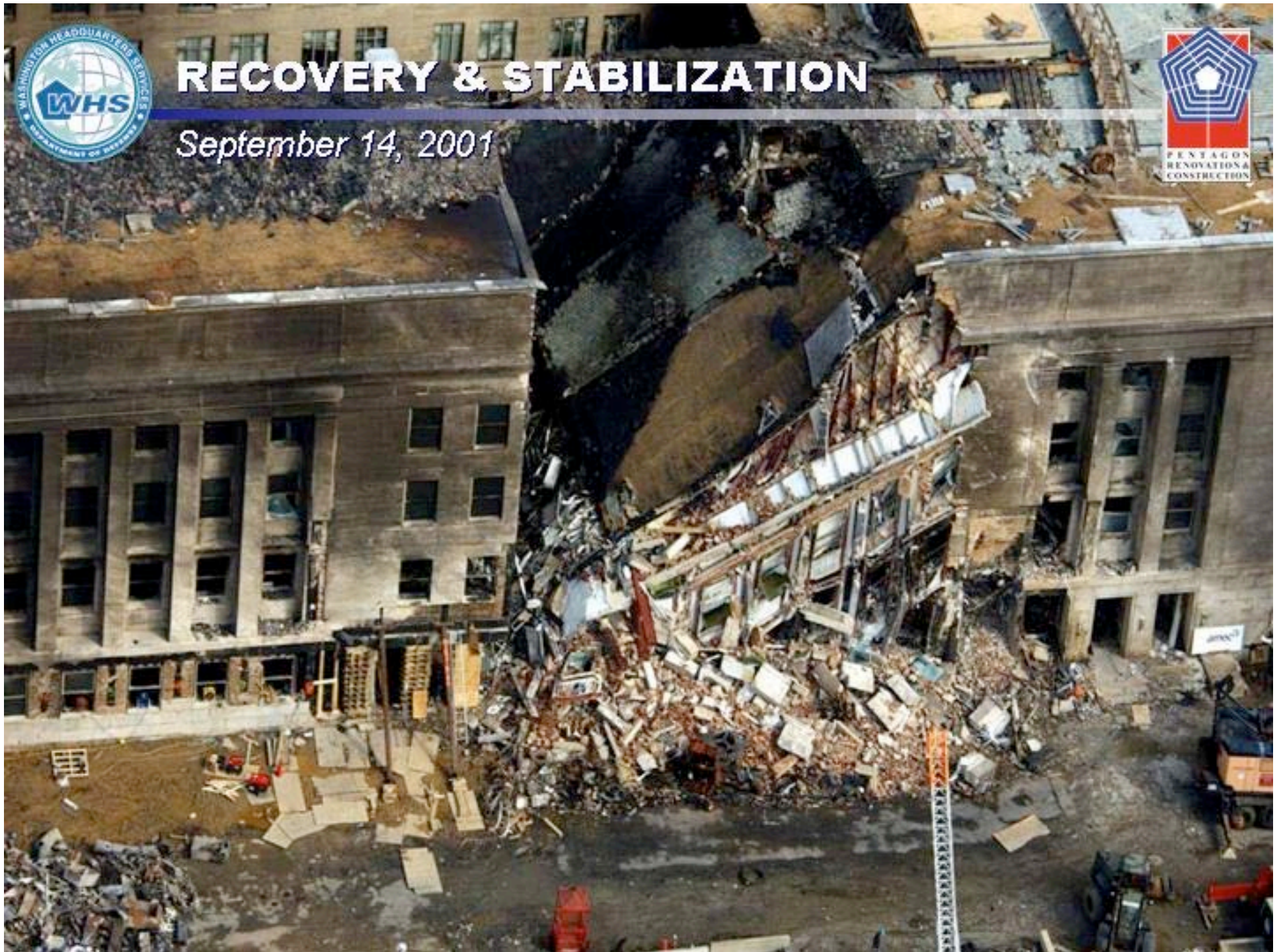


- Recover, Stabilize, Analyze, Demolish, Rebuild, Renovate
- Awarded \$1.5 billion worth of contracts by 9/15/2001
- A promise made



RECOVERY & STABILIZATION

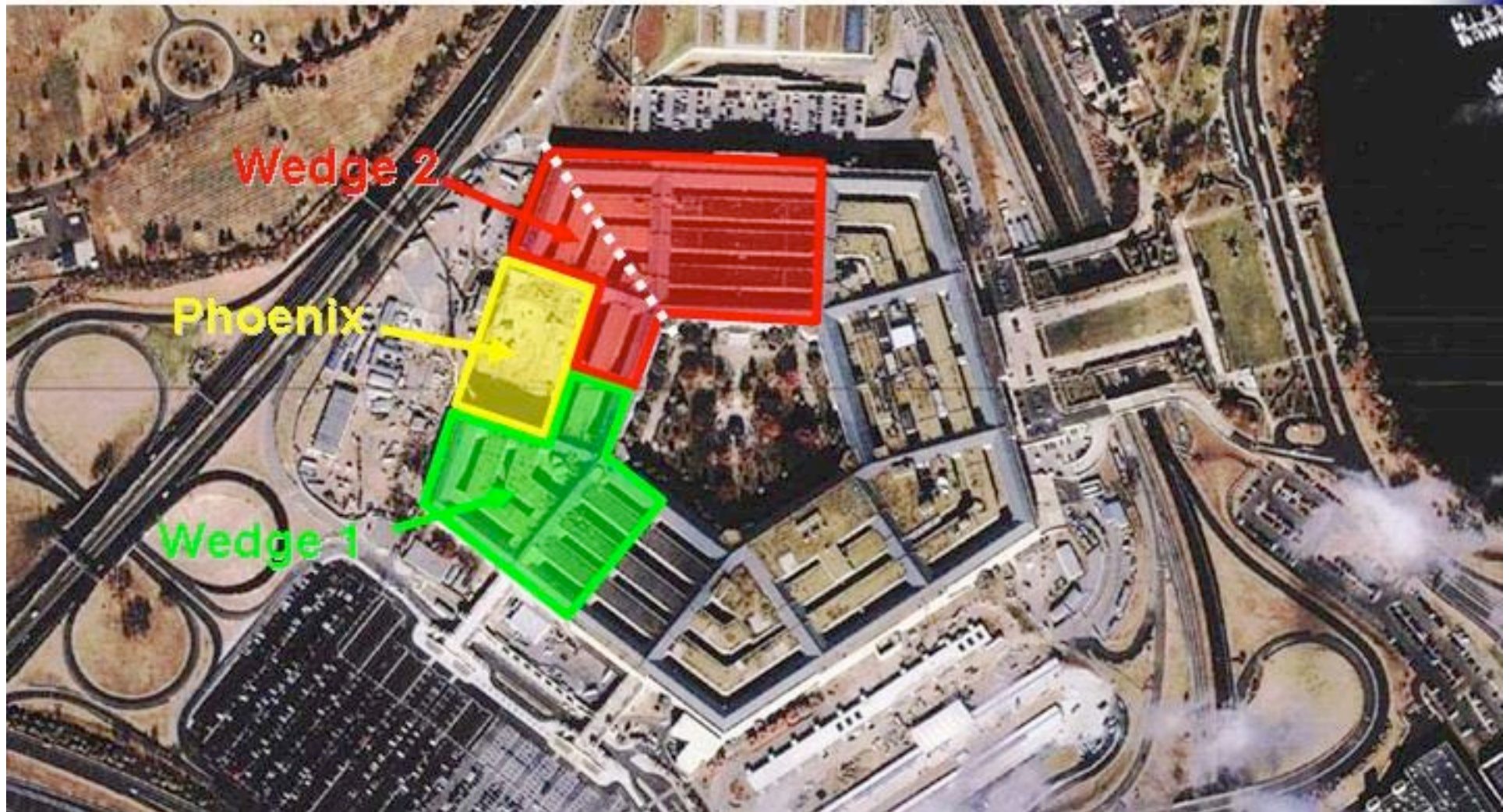
September 14, 2001





ANALYSIS

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





UNITED IN MEMORY

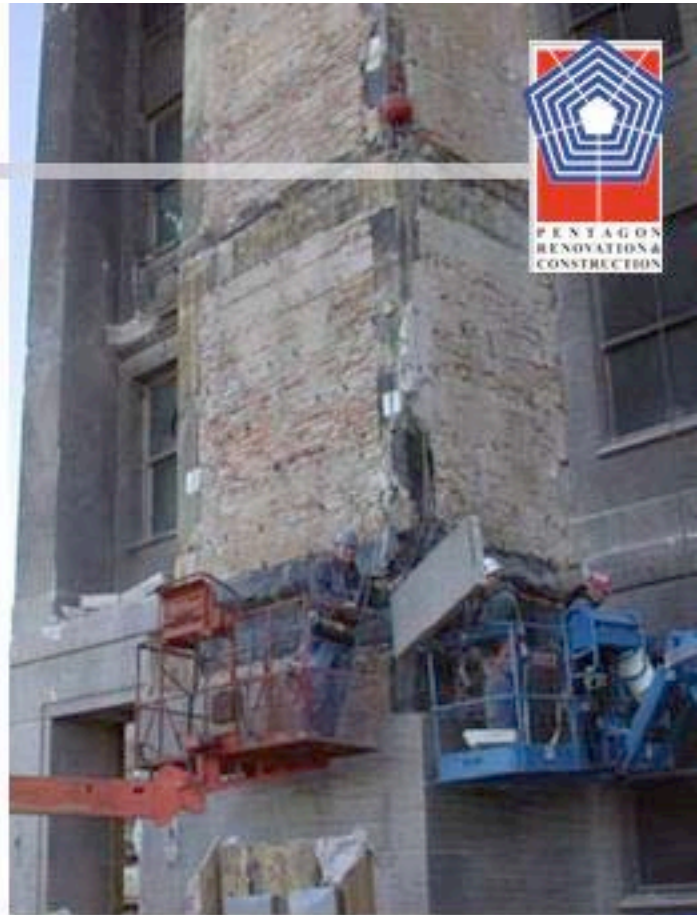
October 11, 2001





DEMOLITION

October 18, 2001



November 5, 2001



DEMO COMPLETE, REBUILDING STARTED

November 19, 2001





REBUILDING

February 13, 2001





STRUCTURAL REBUILDING COMPLETE

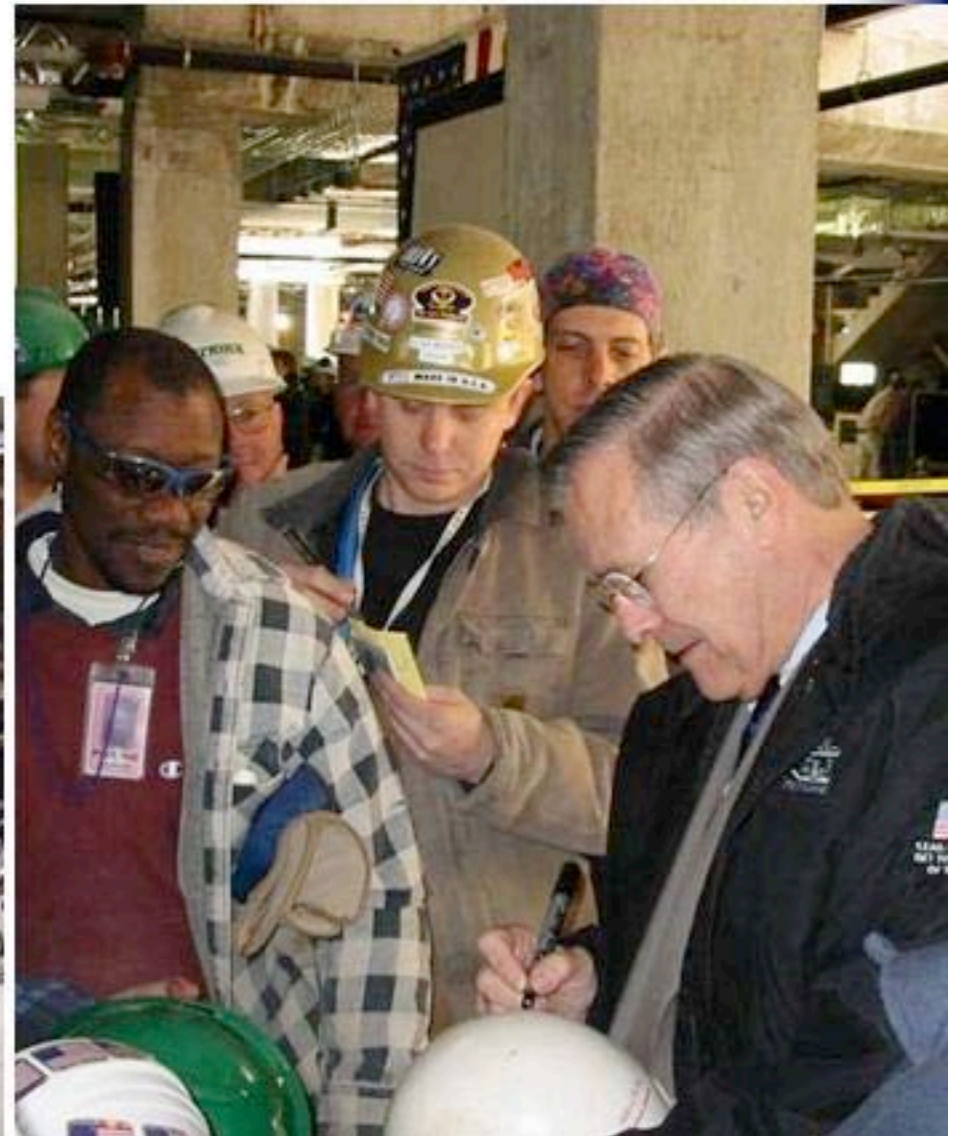
April 5, 2002





TOPPING OUT CEREMONY

April 5, 2002





REPLACING HISTORIC FACADE

April 2002



June 2002





LIMESTONE FAÇADE COMPLETE

June 11, 2002

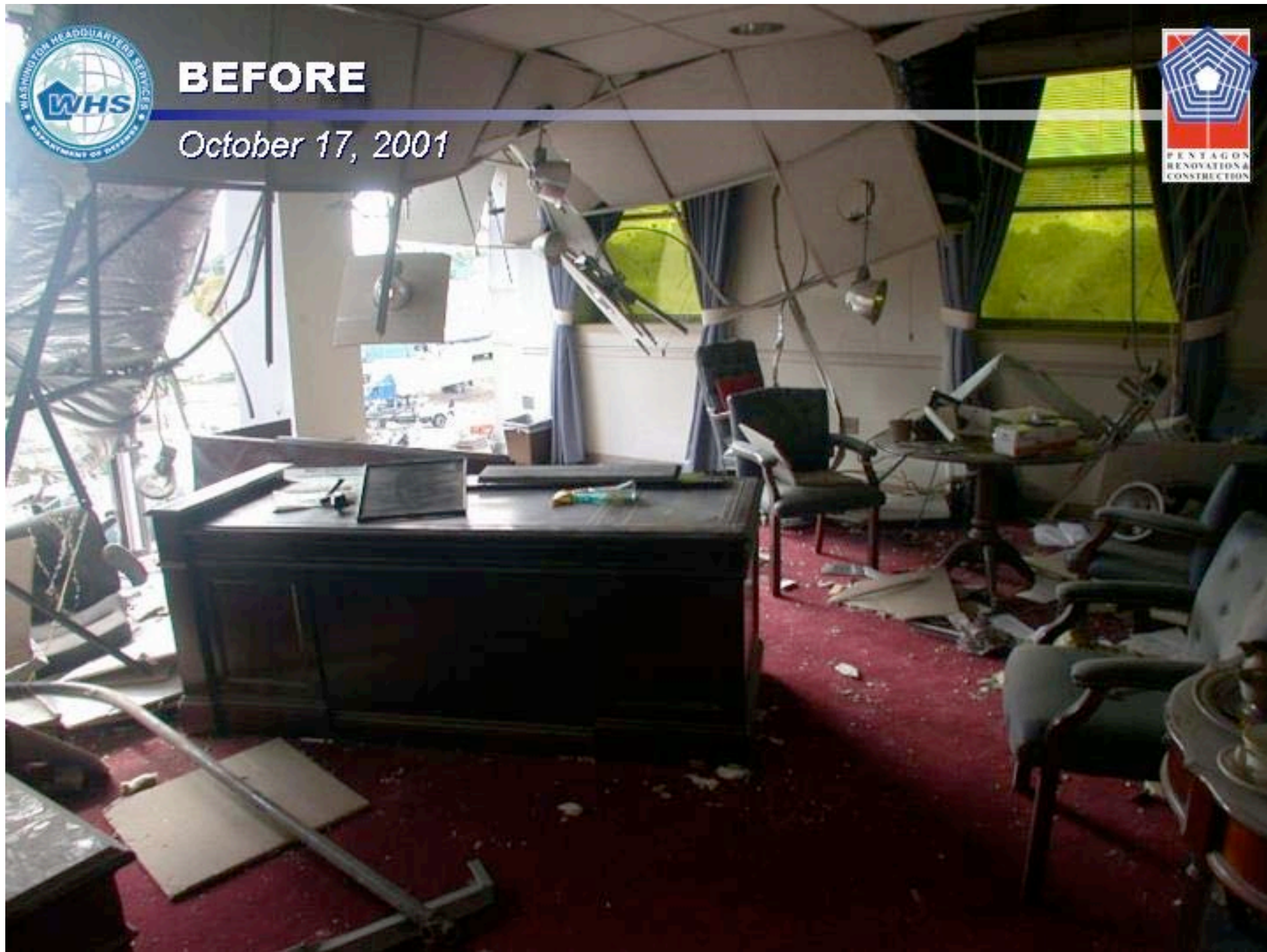
- 4,000 slabs of limestone replaced





BEFORE

October 17, 2001





AFTER

August 15, 2002





BEFORE & AFTER

September 11, 2001

September 11, 2002





BEFORE & AFTER

September 11, 2001



September 11, 2002





UNITED IN FREEDOM

September 11, 2002





PENREN CONTINUES



- Wedges 2-5 schedule advanced by four years – completion mandated in 2010
- New Projects Added



- Pentagon Athletic Center
- Road, Grounds & Security
- Command Communications Survivability Program
- Continuity of Operations
- Pentagon Conference and Logistics Center
- Alternate Command & Control Sites
- Pentagon Memorial



PENTAGON MEMORIAL



- Design selected from more than 1,100 entries
- 184 Memorial Units (benches and pools of lighted water)
- Funded entirely from private contributions





PENTAGON MEMORIAL



<http://memorial.pentagon.mil>



PENTAGON RENOVATION PROGRAM

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



<http://renovation.pentagon.mil>