

3rd Pentagon Accessibility Forum

August 9, 2001

Pentagon Renovation Program Overview
Lee Evey, Program Manager



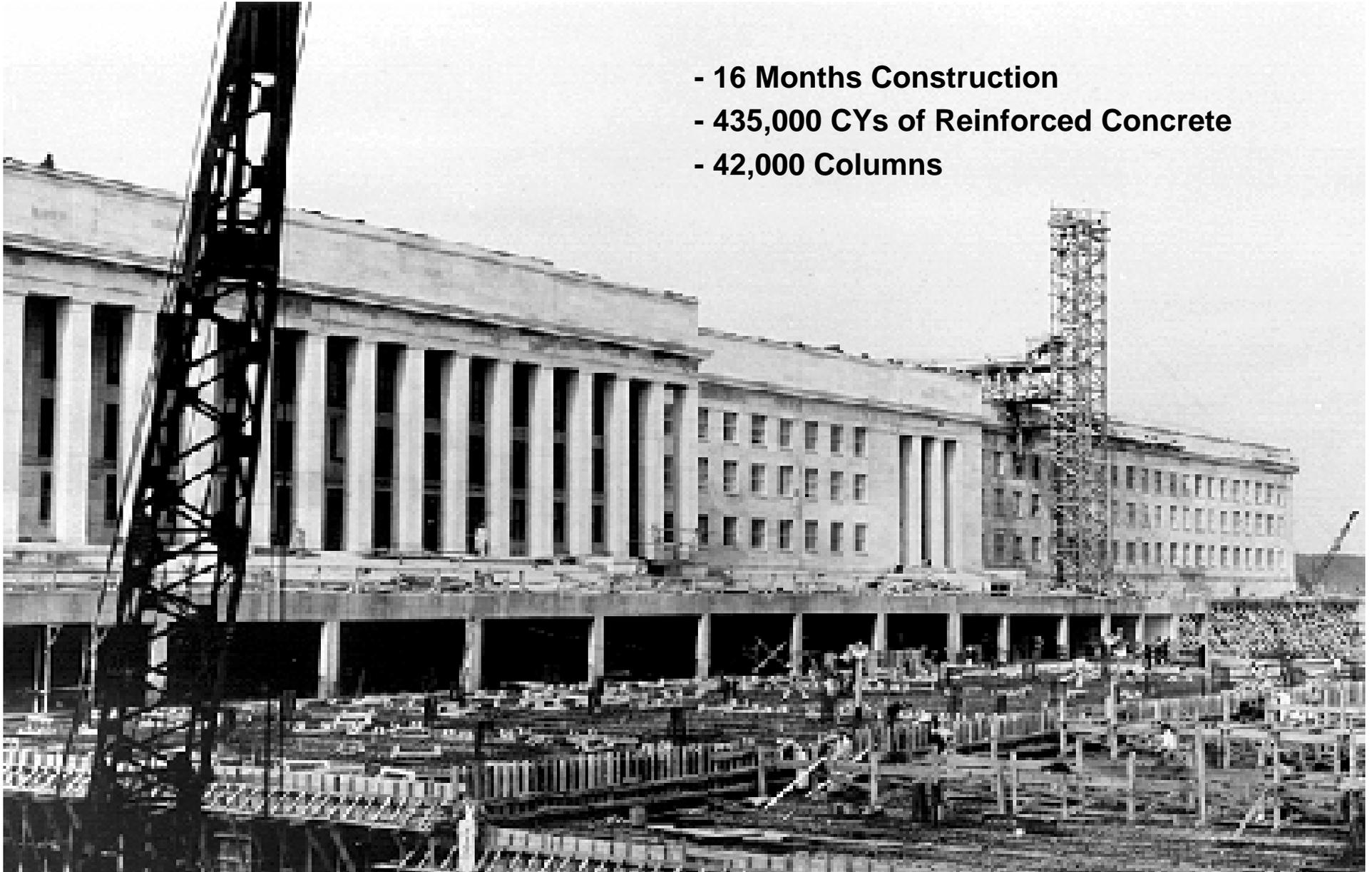
The Pentagon: Original Construction



- Construction begins 1941
- Built on swampland
- Site of old Hoover airport
- Low residential area: “Hell’s Bottom”

The Pentagon: Original Construction

- 16 Months Construction
- 435,000 CYs of Reinforced Concrete
- 42,000 Columns



**Pentagon early years: “Open Bay” office environment:
Lack of robust electrical, cooling, communication systems**

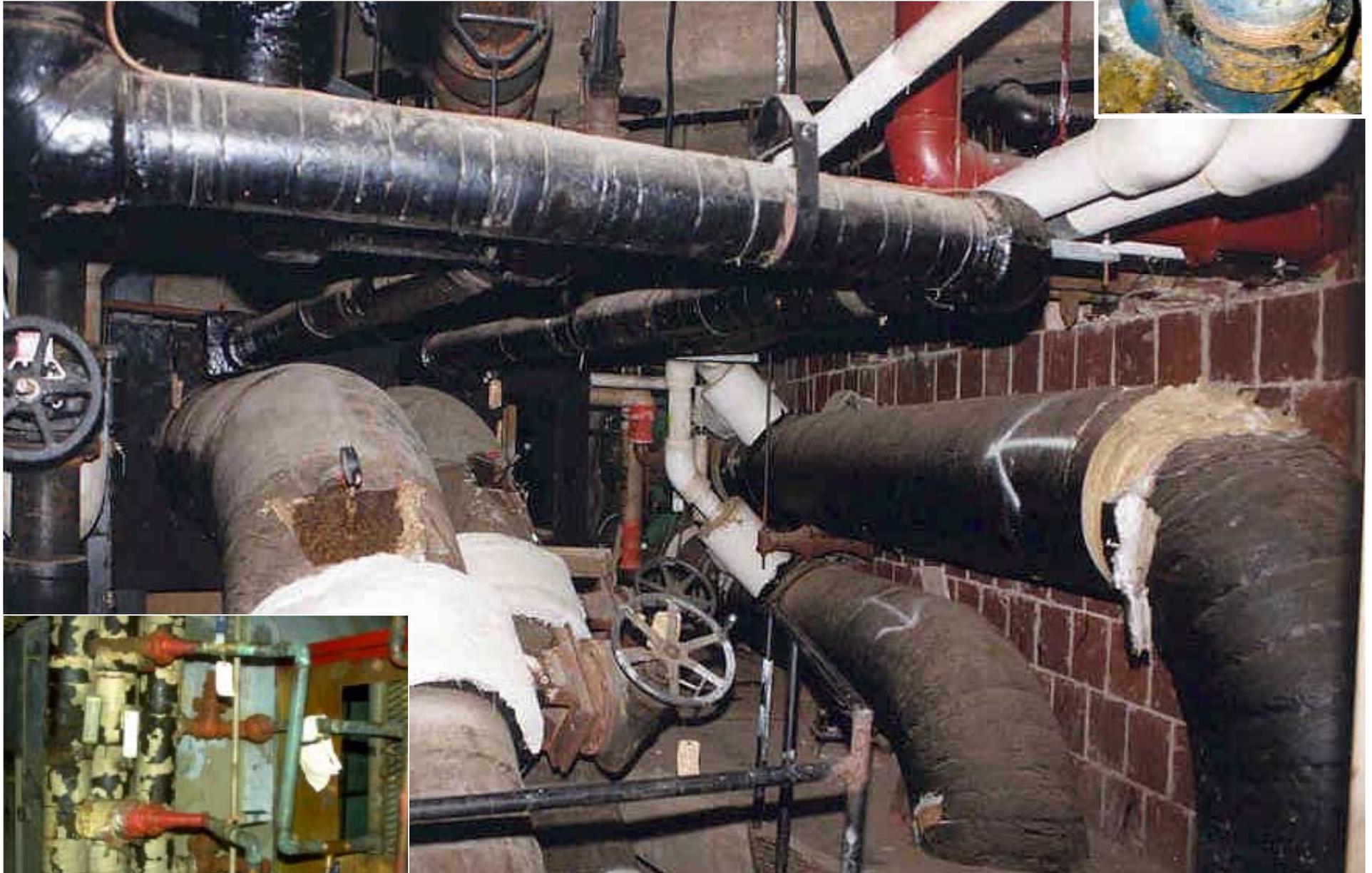


THE PROBLEM:

The Pentagon Has Never Undergone a Major Renovation



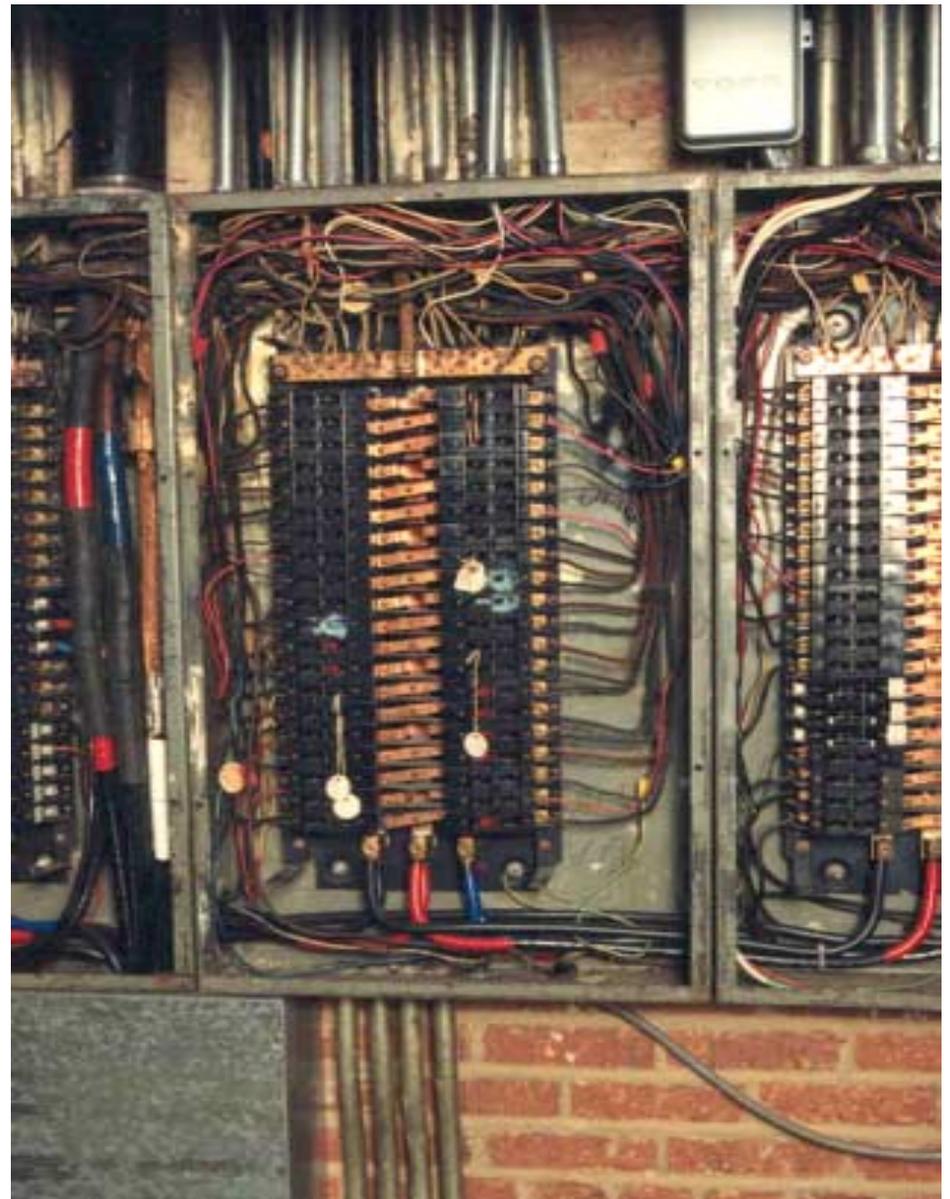
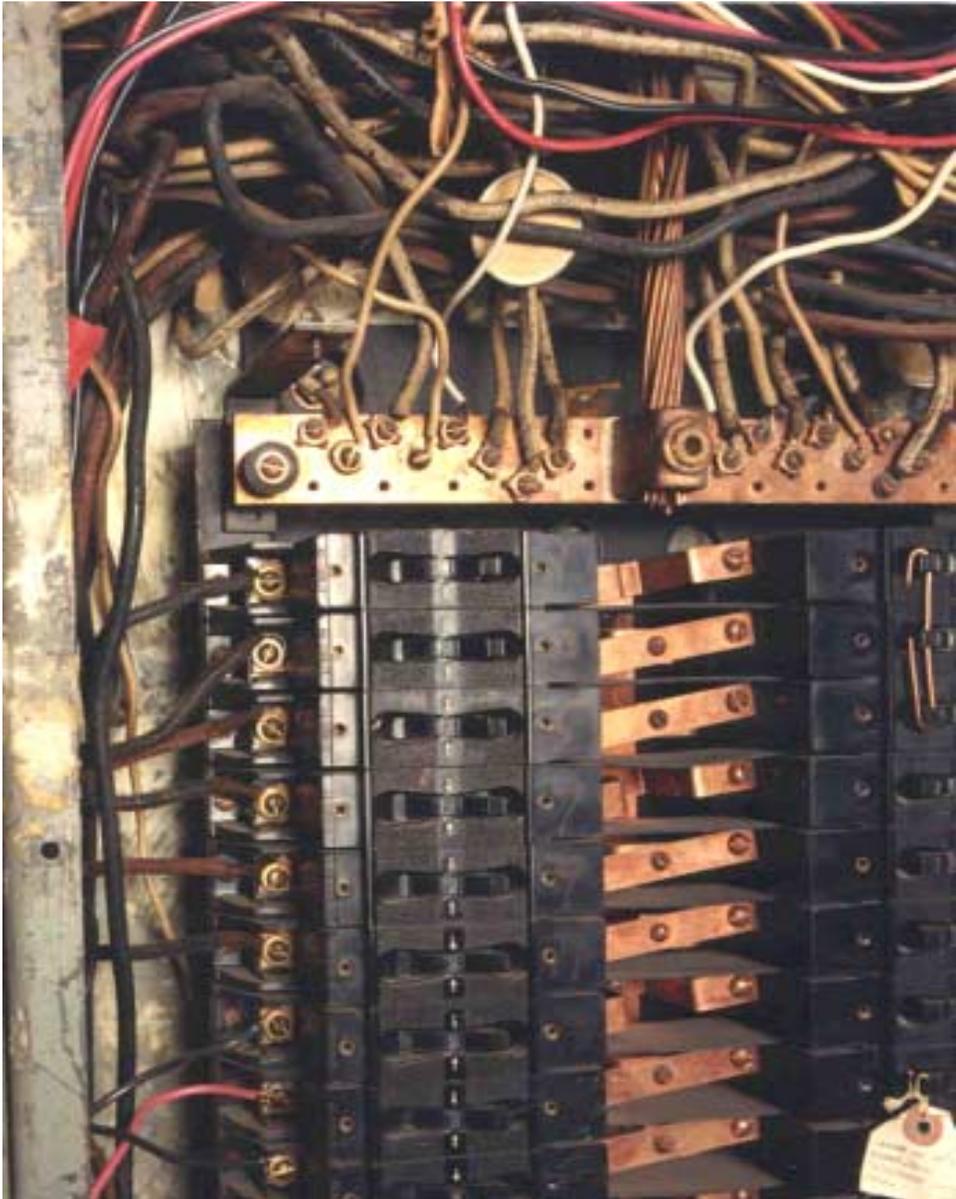
Antiquated Building Systems: plumbing, utility lines



Ventilation



Building Code Violations: Electrical, Fire, Life Safety, ADA and others



Hazardous Materials: Asbestos, Lead Paint, Mercury, PCBs



Poor Energy Efficiency



7,748 antiquated windows

30% energy loss



Antiquated Telecommunications System: New systems on top of old, minimal documentation



Deteriorating Exteriors



Poor Working Conditions:



- Inefficient work space
- Minimal flexibility
- Outdated, mismatched furniture
- Unsafe

- Dark, dank corridors
- Poor air flow
- Shifting floor slab



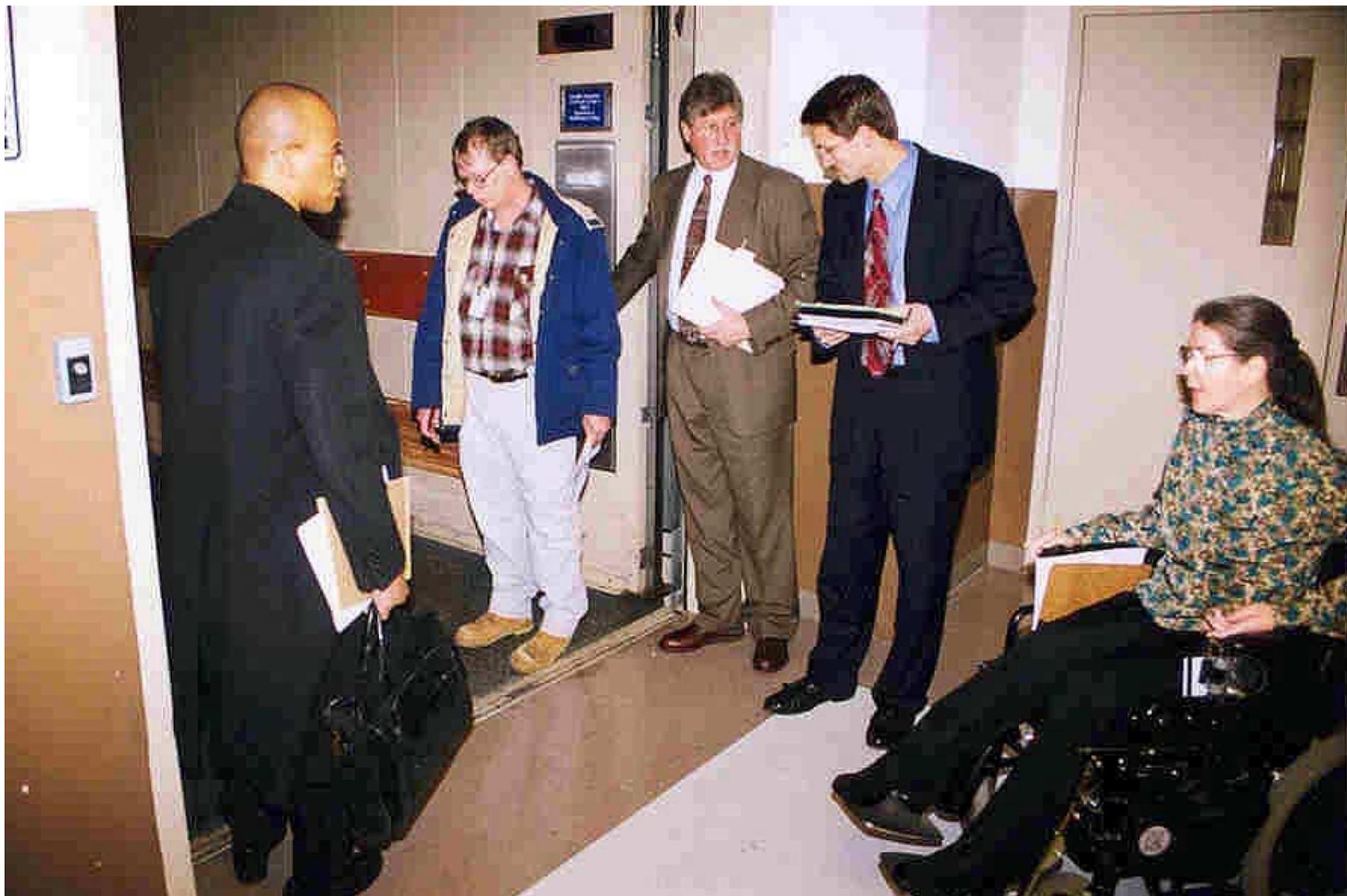
Poorly Designed, Overcrowded Operations Centers



Obstacles for Persons with Disabilities



Existing, antiquated freight elevators - numerous injuries



Ramps not compliant with the ADA

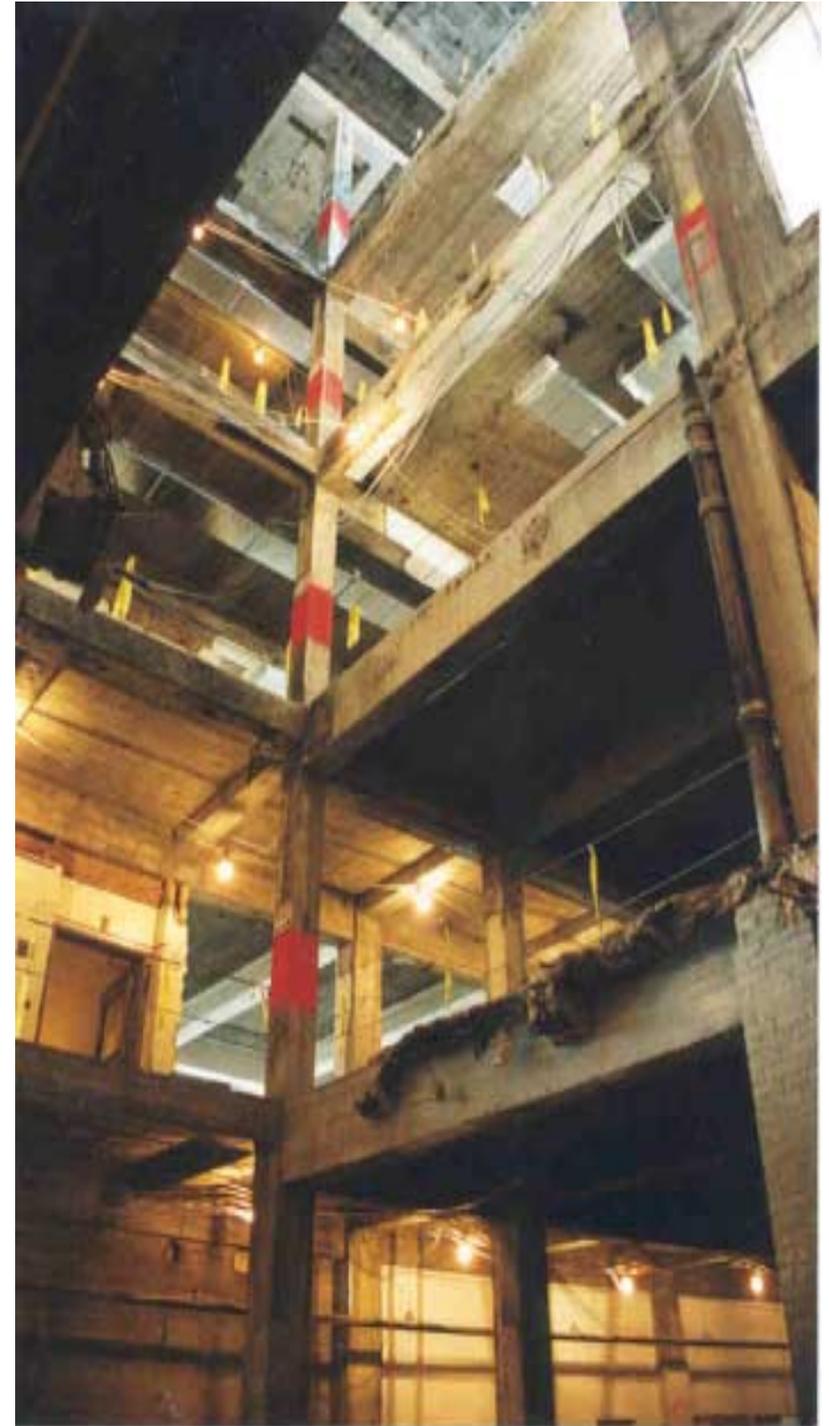


THE SOLUTION:

A COMPLETE RENOVATION

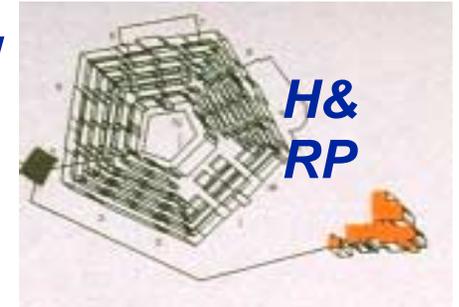
“Ceiling to Slab”

- *Replace all building systems*
- *Improve physical, IT security*
- *Remove all hazardous materials*
- *Improve energy efficiency*
- *Comply with modern building codes*
- *Improve vertical mobility, comply with ADA*
- *Improve pedestrian and vehicular traffic flow*
- *Preserve/restore historical features*
- *Build to last the next 50 years*



New Heating & Refrigeration Plant

1

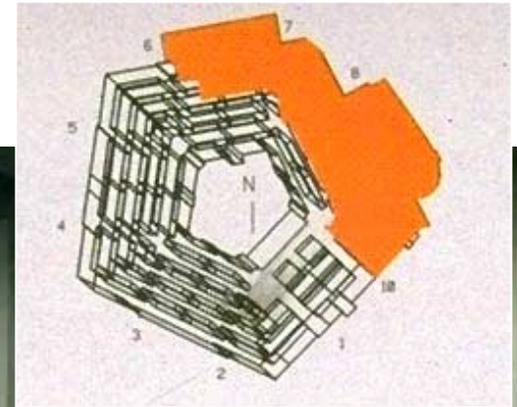


- 30 % more efficient
- New utilities distribution tunnel



Basement/Mezzanine Renovation

2



THE CHALLENGE:

KEEP THE PENTAGON OPERATIONAL DURING RENOVATION

- ***Coordinate activities with all stakeholders***
- ***Relocate 25,000 people during course of renovation***
- ***Maintain accessibility for persons with disabilities***
- ***Work around 20,000 people***
- ***Keep building systems operating***
- ***Minimize disruption***
- ***Maintain security***



The Renovation Process: Swing Space



The Renovation Process: Swing Space



- *45 floors renovated*
- *Nearly 1,000,000 square feet*
- *5,500 tenants relocated*

- *Modern office environment*
- *Secure telecommunications*
- *Requirements duplicated*



The Renovation Process: Swing Space Move-In

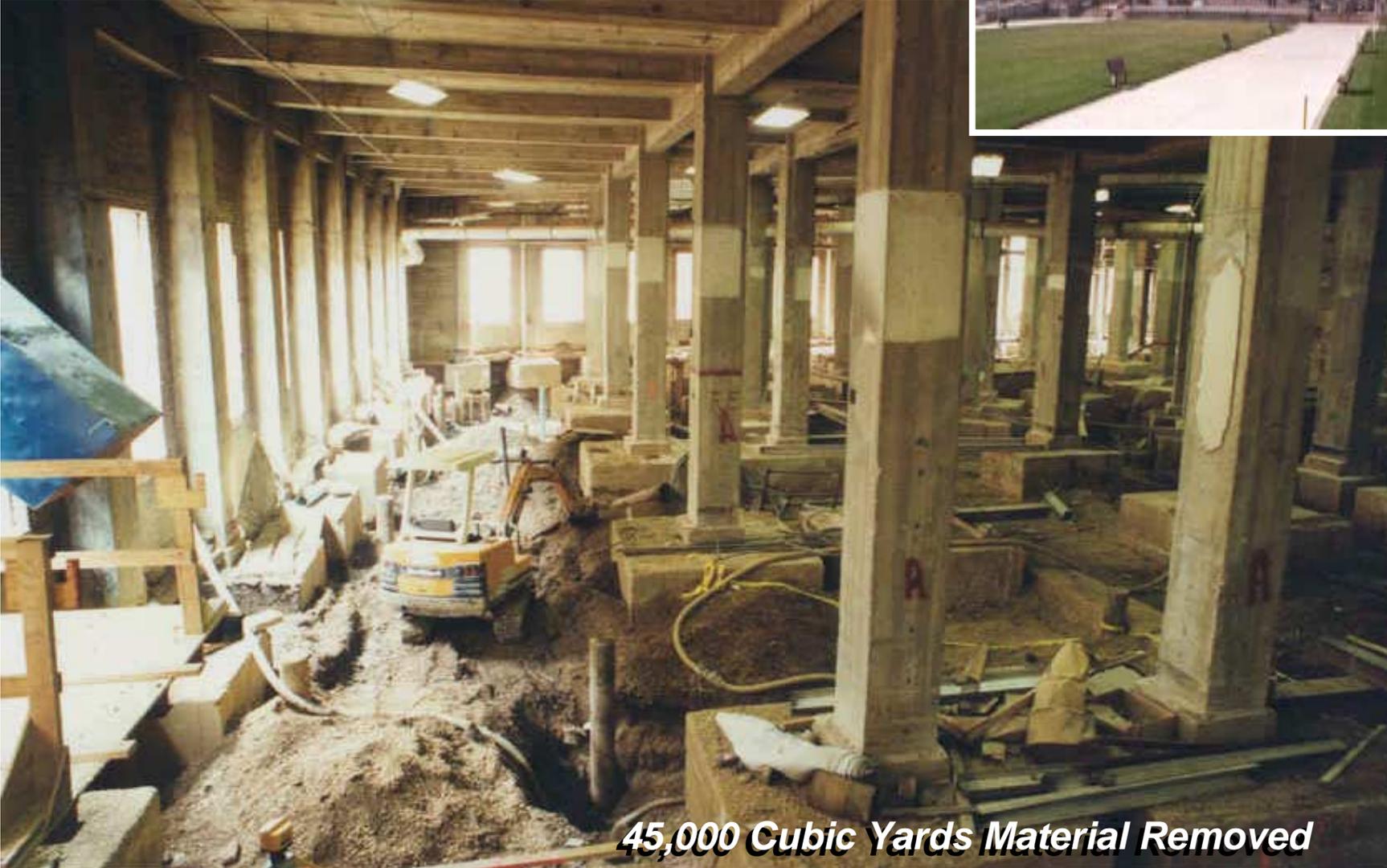


Renovation Begins in the Pentagon's Basement



The Pentagon Basement

*Below River Terrace and
Office of the Secretary of Defense*



45,000 Cubic Yards Material Removed

The Pentagon Basement



Working at Night and on Weekends to Minimize Disturbances

The Pentagon Basement: A New Slab



The Renovated Pentagon: The Mezzanine - A New Level



The Renovated Pentagon: Modern Conference Rooms and Work Space



The Renovated Pentagon: Modern Technical Facilities



The Renovated Pentagon: Modern Communications Facilities



Basement corridors: brighter and energy efficient

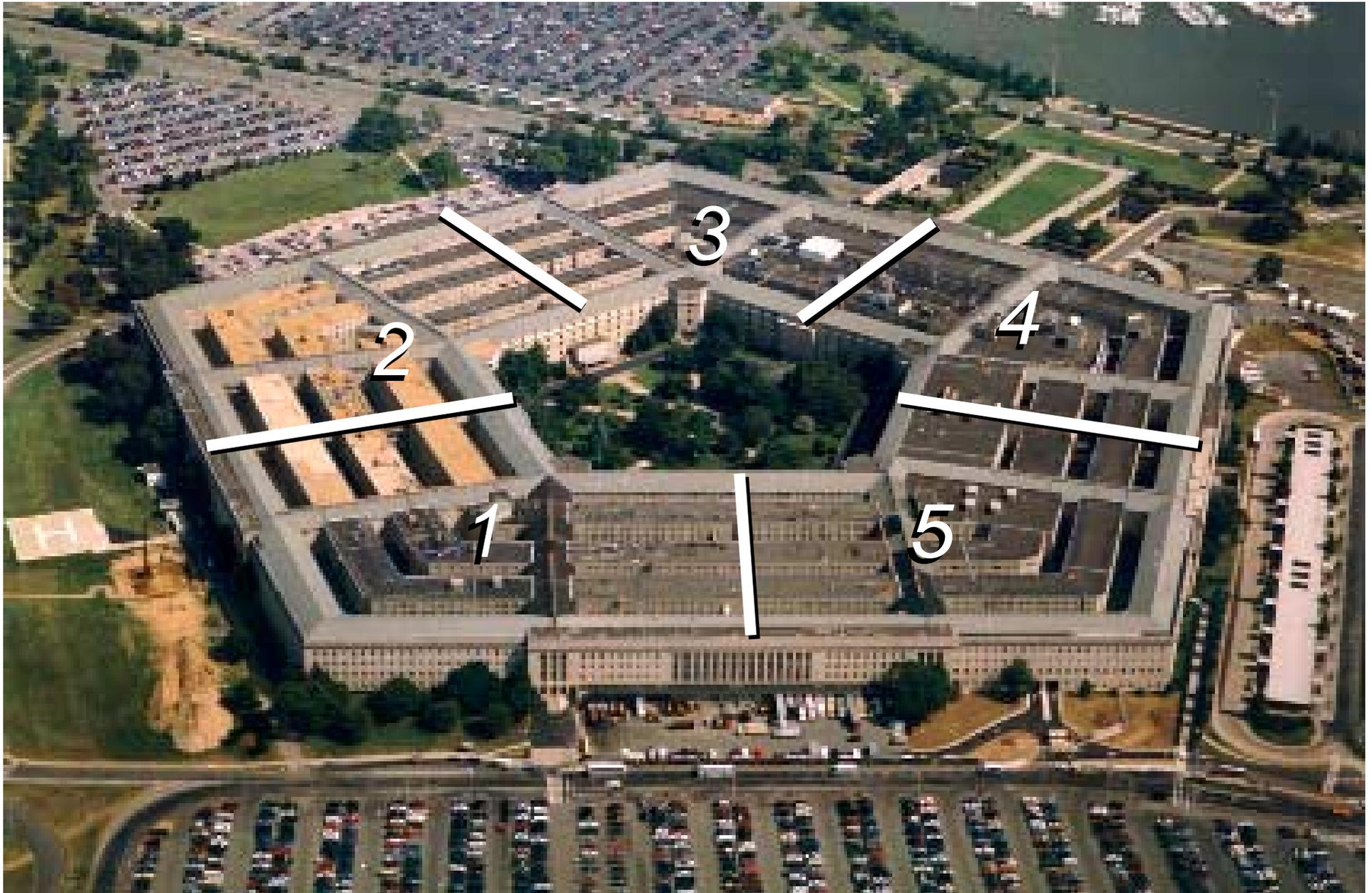
OLD



NEW



Renovation Sequence: Wedges 1-5



Wedge 1

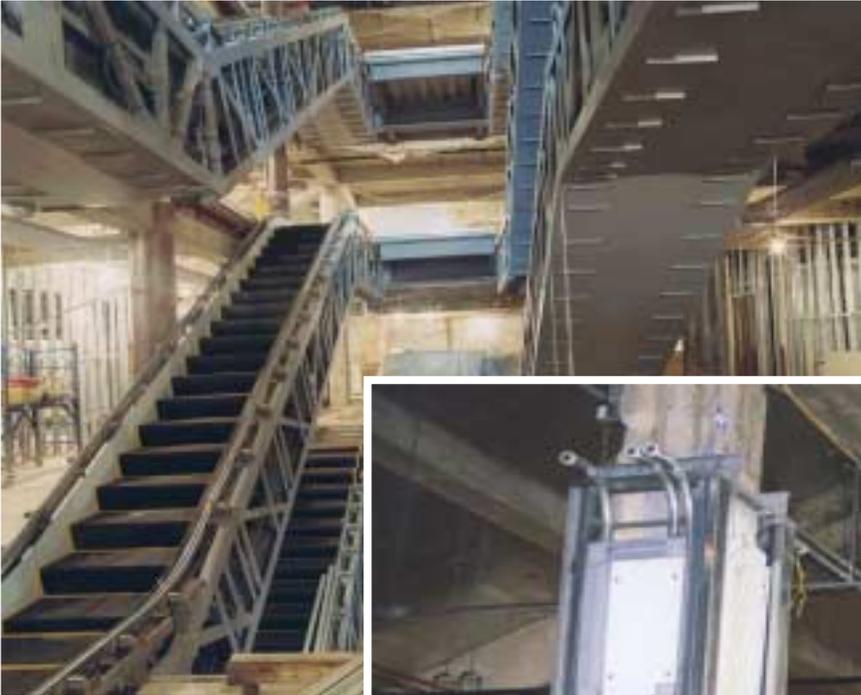
- *5,000 personnel relocated*
- *1,000,000 sq. feet*
- *1,500 windows replaced
(382 historic, blast-resistant)*
- *83 million lbs. debris*
- *2,000 tons asbestos*



Wedge 1: “Down to the bare bones”



Wedge 1: Improvements to building systems



Modern building systems

**Increased reliability,
redundancy and security**

Improved air flow



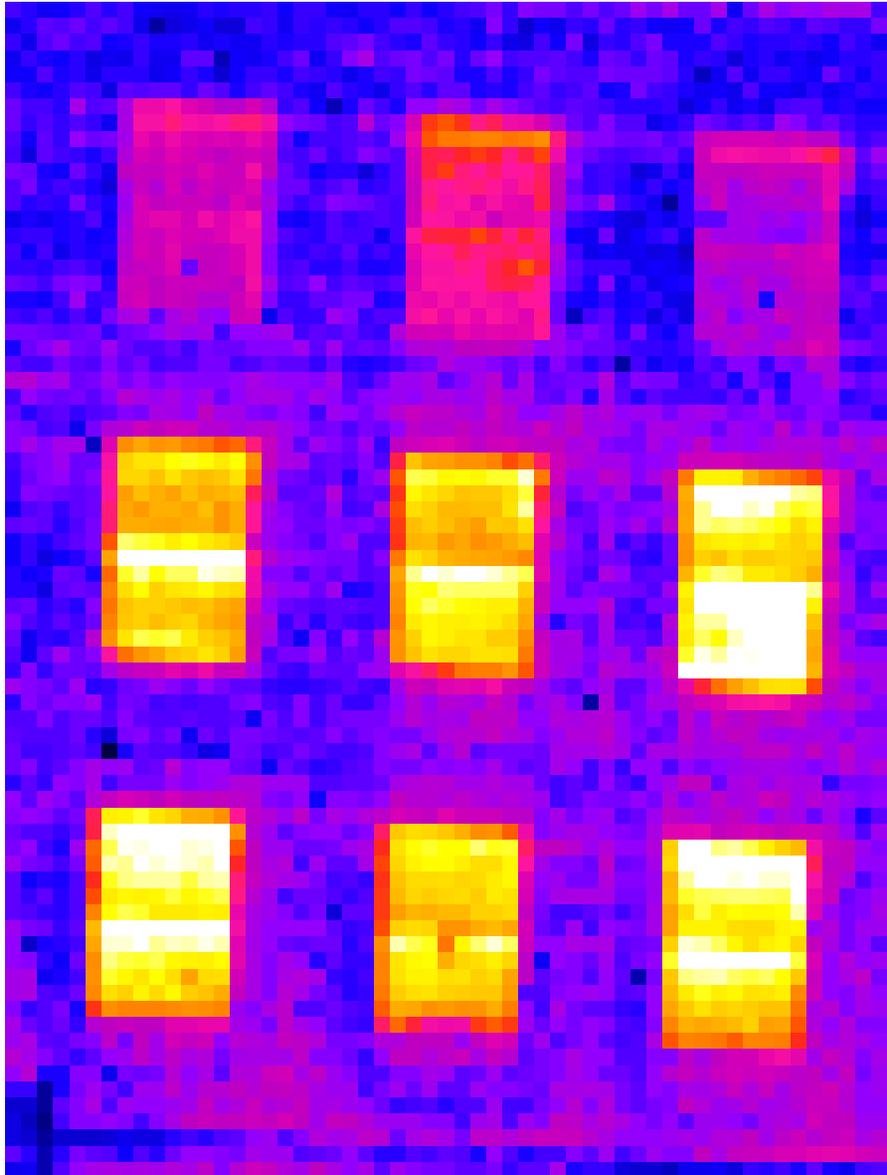
Wedge 1: Improvements to physical security



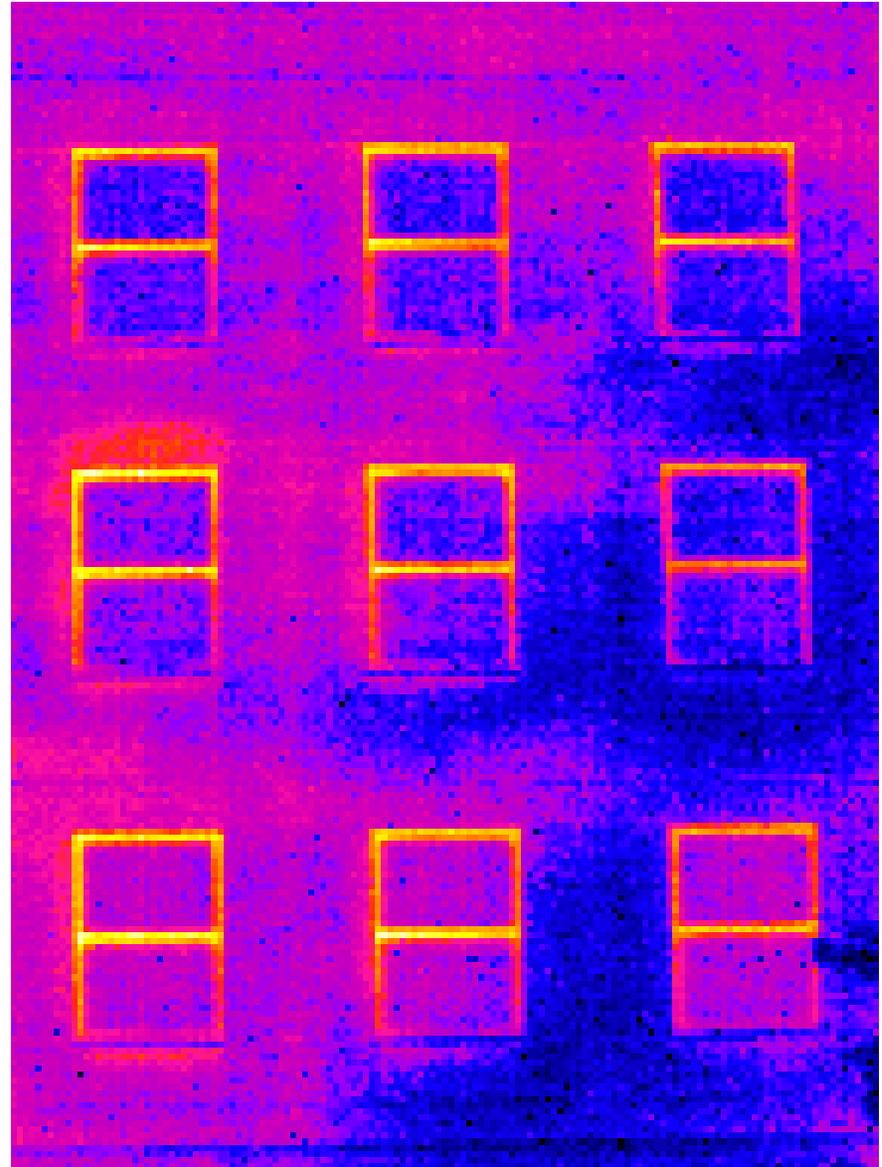
Wedge 1: Tighter thermal envelope, new windows, insulation, ductwork



Wedge 1: Improvements to Energy Efficiency



OLD WINDOWS



NEW WINDOWS

Wedge 1: Return to open bay environment



Wedge 1: Safe, modern, flexible office environment



Wedge 1: Open bay improves air flow, accessibility



Wedge 1: Open bay permits natural light throughout space



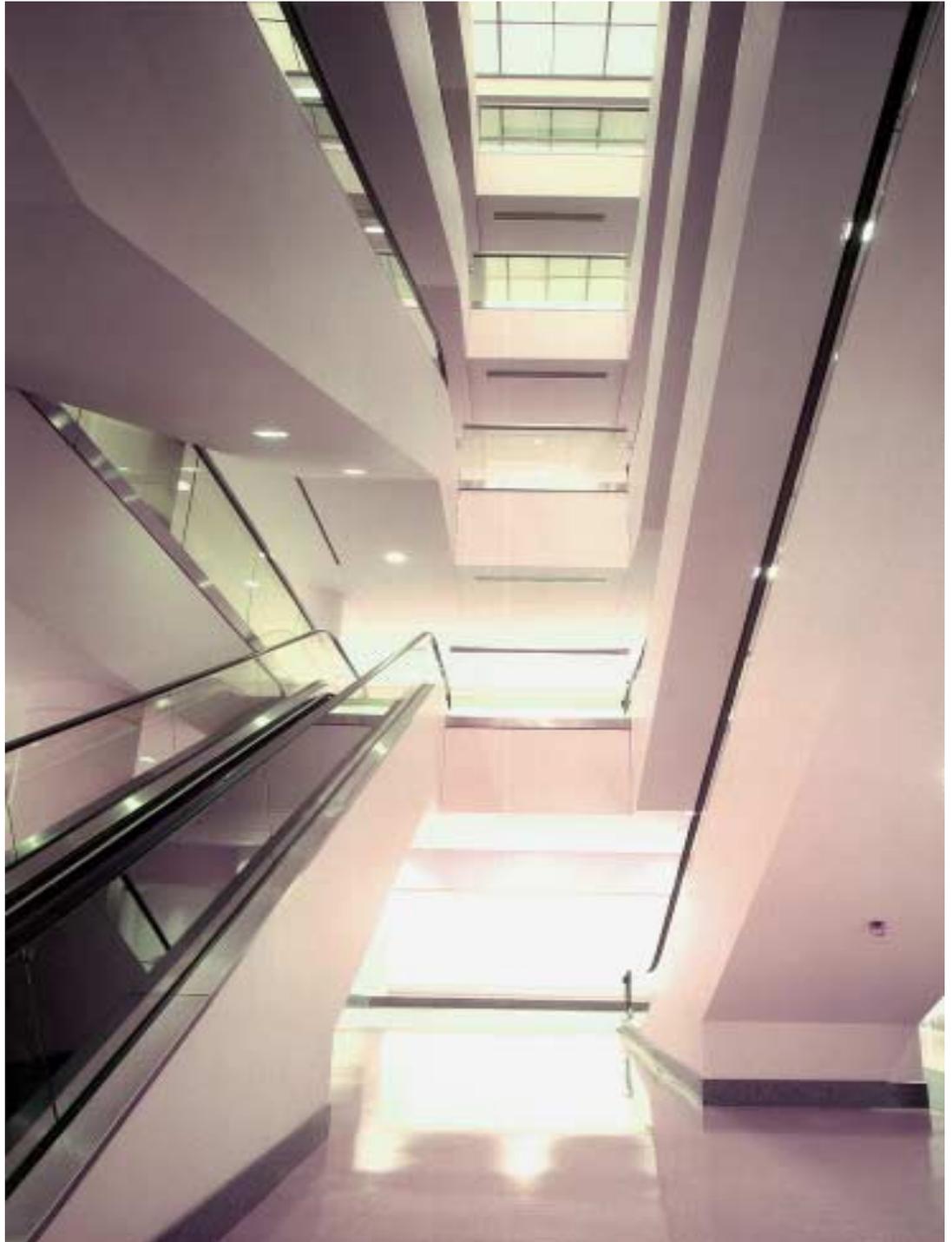
Wedge 1

- Modern corridors and interior spaces
- Energy efficient



Wedge 1

- Improvements to vertical mobility: new escalators, 8 new passenger elevators



Wedge 1: Ready for Move-In



- Modern systems furniture
- Increased flexibility
- Improved air flow and lighting



Wedge 1: Sensor-activated restroom fixtures



Wedge 1: State-of-the-art mechanical, electrical, communications systems; increased reliability, security



Wedge 1: New Building Operations Command Center



Wedge 1 Grand Opening - March 2001

- 1,500 personnel moved in since Feb 01
- 4,500 by October 2001



PenRen HELP desk provides on-the-spot assistance



South Terrace Bridge Project

- 3,000 vehicles
- 7,000 - 10,000 pedestrians
- Police officers needed to regulate traffic flow
- Traffic jams during rush hour



South Terrace Bridge Project Design Approved - 1997



**Access to Pentagon over
Rotary Road, new bus shelters**

South Terrace Bridge Project - Construction begins Fall 1997



South Terrace Bridges - July 2001

